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BOSTON'S NEW DEPARTMENT OF PUBLIC WORKS

Consolidation of Present Departments, Embracing Water Distribution, Paving, Sewers, Street Lighting and Ferries—New Departments of Sewer and Water, Highways, and Bridges and Ferries

ON Feb. 1, 1911, the Street and Water Departments and the City Engineer's Office of the Boston City Government will be consolidated into a new "Department of Public Works," under the single authority of a Commissioner of Public Works to be appointed by the Mayor with the approval of the State Civil Service Commission. Louis K. Rourke, now Superintendent of the Street Department and author of the reorganization scheme, will be appointed to the new office, with a salary of \$9,000 a year. The ordinance authorizing the reorganization was passed by the Boston City Council on Nov. 14 and was signed by Mayor Fitzgerald on Nov. 29.

The new scheme is the result of Mr. Rourke's experience on the Panama Canal work, where, for four years, he was Acting and Assistant Division Engineer of the Culebra Division. While he was on the Isthmus Mr. Rourke had a large part in planning the reorganization of the administrative system, relating to engineering and construction, that was put into effect over the whole area of the zone by Colonel Goethals during the years 1906-1907.

The accompanying diagrams show the present Boston organization and the main framework of the new scheme. The present organization provides for three departments; those of the Water Commissioner, City Engineer and Superintendent

to the maintenance of such structures after they have been completed. His office and staff have been available to the heads of the other two departments whenever they chose to ask for technical advice, but these heads of departments have been under no explicit obligation to refer engineering matters to the City Engineer's office, and have done so or not according to the circumstances of the moment. It so happened that the late City Engineer, William Jackson, kept his department out of politics, and both for that reason and for his eminence as an engineer he was reappointed for many years by a succession of Mayors. The City Engineer's Department, therefore, solely through the personal qualities of Mr. Jackson, has been for many years a non-political department.

It was due solely to the personality of Mr. Jackson, however, and not to the ordinances governing the organization, that his department was different from the Water Department and that of the Superintendent of Streets. These two departments have long been political prizes of much practical value, and the choice of a head for each has nearly always been determined by the political necessities of the local faction in control at the moment. From this political character, and from the independence of the two departments with regard to each other and to the City Engineer's office, there have resulted end-

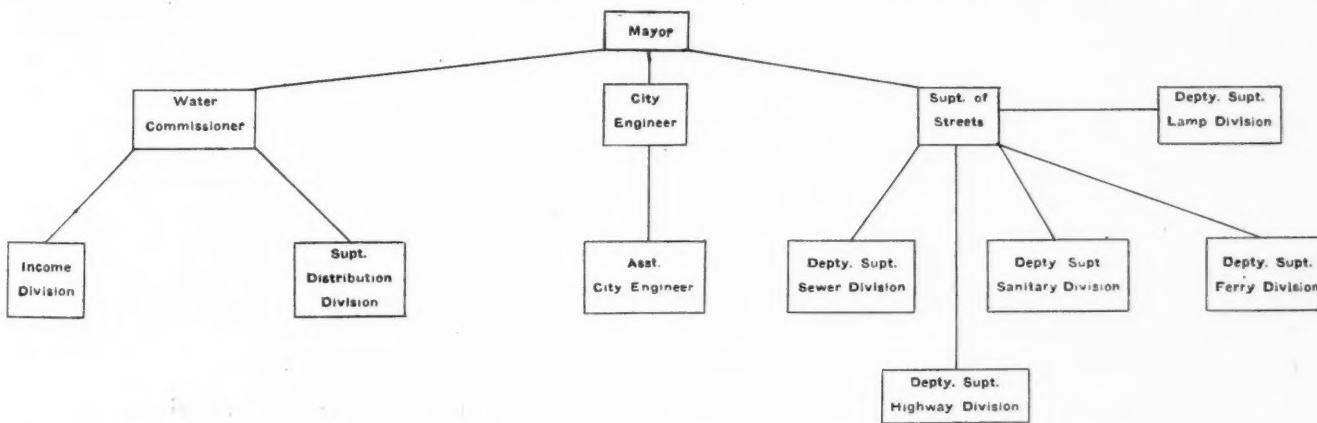


FIG. 1—PRESENT ORGANIZATION OF BOSTON DEPARTMENTS

of Streets. The heads of these departments are appointed by the Mayor, subject to the approval of the Civil Service Commission, and are removable by him. These three departments are entirely independent of each other. The City Engineer has been concerned in the past almost exclusively with the designing of new construction, chiefly bridges. The City Engineer has had no control whatever over the construction itself under the plans he has drawn, and no control in regard

less friction and conflict between the Street and Water Departments. The Water Department has had a right to open streets for the purpose of laying water mains and service pipes. The Street Department has opened streets for the building of sewers and catch basins. The heads of the two departments, if they had so chosen, might have co-ordinated their plans so as to avoid needless opening of streets and so as to insure the reconstruction of street surfaces in a man-

ner to satisfy the requirements of the Street Department, which has entire control of paving. This co-ordination was rarely attempted, however, and almost never realized; with the practical result of much duplication of street opening, much needless interruption of street traffic, much needless impairment of street surfaces and all the waste of money and time that always accompanies such conflicts. Any one familiar with the operations of the average city government will be able to supply further details from his own observation.

Diagram 2 shows the main outlines of the new plan. The new ordinance authorizes the Commissioner of Public Works to create such divisions of the department as he may find necessary for the proper conduct of the department's business. Mr. Rourke has made for the present only the three divisions shown in the diagram. In making this distribution he has followed a principle which governs the engineering work of German cities, namely, that of separating all engineering and construction work into underground and over-ground divisions. On this principle, the Division Engineer in charge of the underground or sewer and water division will have entire immediate control of the design, construction and repair of all sewers and sewer structures, water mains and service pipes, and he will be responsible for the management of the city laboring forces and engineers engaged upon any stage of such work.

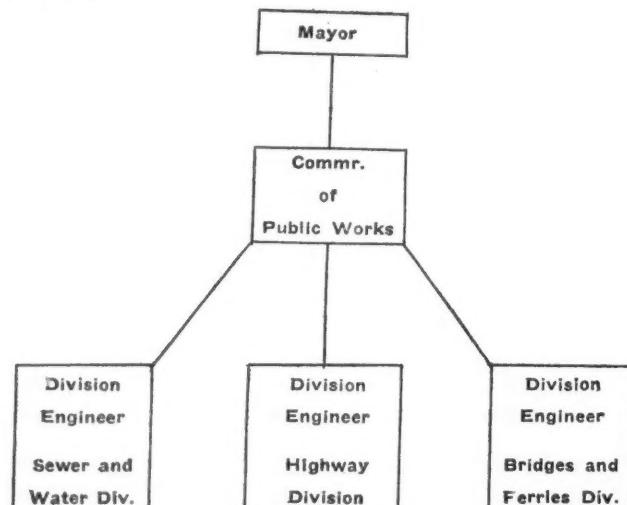


FIG. 2—NEW ORGANIZATION OF DEPARTMENTS

The over-ground work is assigned to the Division Engineer in charge of the Highway Division. He will have entire control of paving and other street surfacing, street watering, street lighting and the collection and disposal of ashes and domestic refuse. The third division, that of bridges and ferries, is given a separate organization for the practical reason that Boston has several ferries operated by the city and a great number of bridges of various sorts. During the next five or ten years it is certain that several million dollars must be spent on bridge repairs and new construction, so that this branch of city engineering, in Boston at least, furnishes plenty of work for one division head.

The first principle of the new organization is the concentration of responsibility. The new commissioner will be answerable for, and can secure through his Division Engineers, proper co-ordination of work, the avoidance of conflicts and a much better economy of money and time.

The second principle, which embodies a theory more or less peculiar to Mr. Rourke himself, is that the fixing of responsibility shall be secured by making the engineer who plans city work responsible not only for the planning but for the construction and maintenance; and, as a part of this, also for the proper directing and management of the laboring and supervising forces. This aspect of the scheme has brought out some little criticism, but it is considered by the friends of the new plan to be one of the strong points. It is admitted that not all engineers are good executives, but it is contended also that

good executives are probably just as numerous among engineers as in any other class of professional men; and that it is perfectly practicable by the exercise of good judgment on the part of a competent Commissioner of Public Works to select for heads of the divisions men who are not only competent as engineers but are also able to secure efficiency and maintain discipline in the forces under their immediate authority. In fact, the friends of the new plan argue that Mr. Rourke's scheme is in reality bringing the engineer into his own. By contrast, at least, the new plan shows to advantage against the present organization, where, for instance, we find an absurd situation like the following: In the sewer division of the Street Department there are four resident engineers, each of whom oversees construction work within his own district. When one of these engineers sees a piece of construction being wrongly done he has no authority to order the foreman in charge of the gang on the job to bring the construction in harmony with the design; instead of this he must report the matter to the chief inspector, who in turn reports it to the head of the department, who, if he be a thorough-going politician, as he usually is, is often little inclined to interfere with the operations of a favored contractor. Under the new scheme such a situation will be impossible. The ordinance creating the department says specifically that the Commissioner of Public Works

shall have authority to order any public work, whether done by a department or under contract or otherwise, to be discontinued, reconstructed or removed whenever, in his opinion, said work fails in any manner to comply with or fulfill the terms, conditions, specifications and requirements of any such contract or agreement, or fails, in his opinion, to conform with proper engineering standards.

Civil Service protection has been provided for the division engineers under the new scheme so far as it was practicable to accomplish this merely by a city ordinance. The Civil Service Commission is a State body, and the charter of Boston makes no provision explicitly giving the commission power to pass on the qualifications of appointees to these new positions. To remedy this defect so far as possible the ordinance makes the following provisions:

Each division of the department created or changed by said commissioner, with the exception of the water income division, shall be in charge of a civil engineer of recognized standing in his profession and an expert in the duties which may devolve upon him, such division engineer to be appointed without regard to party affiliations or residence at the time of appointment, each head of a division to devote his whole time to the work and to receive an annual salary of not more than five thousand dollars with no other fees or emoluments.

In appointing an engineer to take charge of a division of the department the commission shall certify that he is a civil engineer of recognized standing in the profession, that in the commissioner's opinion he is an expert in the work which would devolve upon him, that he is a person specially fitted by education, training or experience to perform the duties which may devolve upon him, and that the appointment is made solely in the interest of the city—this certificate to be filed with the city clerk and open to public inspection.

There would seem to be no necessary ground for the criticism that under this new scheme the Commissioner of Public Works will be overloaded with petty administrative details in addition to the burden of being his own chief engineer. The commissioner will necessarily have much to do with a certain class of details, but unless the commissioner fails in the qualities which the new scheme requires of him the suggested difficulties should not occur. The purpose of having a head for each division is to lay upon that chief of division the management of all details, and the decision of all details, which do not involve broad questions of policy or large technical decisions, which ought to be passed upon by the commissioner himself. It is the intention to make the Division Engineers responsible for discipline within their departments, and it is Mr. Rourke's contention that if the division head cannot settle such small matters by himself that very failure would show him to be unfitted for the position. In regard to engineering matters, each chief of division will have his own engineering staff, which ought to be and doubtless

will be competent to do all the detail work required on the engineering tasks of the division. What the head of a division would carry to the Commissioner, therefore, in the way of engineering plans would be completed schemes upon which a commissioner who is a competent engineer should be able to pass judgment without unduly great expenditure of time or attention.

Although no appointments under the new plan have been made, it is certain that Mr. Rourke will be the Commissioner. He told the City Council before the ordinance was passed that he had picked out three men for heads of divisions, and that if the ordinance was passed he would appoint them as follows: Frank A. McInnes, now Assistant City Engineer, as Division Engineer in charge of the sewer and water division; James H. Sullivan, now Deputy Superintendent of Highways in the Street Department, as Division Engineer in charge of the highway division; and Frederick H. Fay, of the present Engineering Department, as Division Engineer in charge of the bridges and ferries division. These men are all civil engineers and stand at the top of the engineering lists of the Civil Service Commission.

ELECTRIC PUMPING IN FRANCE

INCREASING demand for water has compelled the city of Lyons, France, to remodel the municipal water power station and increase the capacity of the water works. As electric power could be obtained with little trouble from a hydroelectric power station near by, high-pressure centrifugal pumps direct connected to electric motors were installed, the plant having a present capacity of 3,200 h.p., which will soon be increased to 4,000 h.p. These form a part of a comprehensive plan which includes the construction of thirty-eight new wells which are expected to give a total capacity of 1,750,000 cubic feet of water. This is the first large municipal water works in France in which electrically driven high-pressure centrifugal pumps are used exclusively.

Four new centrifugal pumps were installed in the Grand Champ station between five older steam pumps, which latter will be used as reserve pumps. Both the old steam and the new electric pumps discharge into the same rising main, and a common intake channel is used by all. Each of these pumps makes 970 revolutions per minute and will lift 93 gallons a second to a height of 191 feet. The power needed for this is 354 h.p. and an efficiency of 76 per cent was assumed. The motors have an effective power of 400 h.p. at 3,500 volts, to which the current is transformed from an original 10,000 volts by two Alioth transformers.

In the St. Clair station are two groups of four pumps each, one group feeding the reservoirs of Sarra and Rilleux, the other those of St. Clair and Montessuy. However, the piping and gate valves are so arranged that any pump can be used to help out the work of the pumps of the other group in case of emergency. The different elevations of the reservoirs necessitated special arrangement of the pumps, so that those of the first group can pump either 52 gallons per second to a height of 165 feet or else 26 gallons per second to a height of 330 feet depending upon which reservoir is being filled. The pumps are all of uniform make but of different sizes in the two groups, each pump being of 200 h.p. at 3,500 volts and 1,450 r.p.m.

Efficiency brake tests of motors (hydraulic brakes being used) gave an average for the 400-h.p. motors under full load of 93 per cent efficiency, and 92.5 per cent efficiency for the 200-h.p. motors under full load.

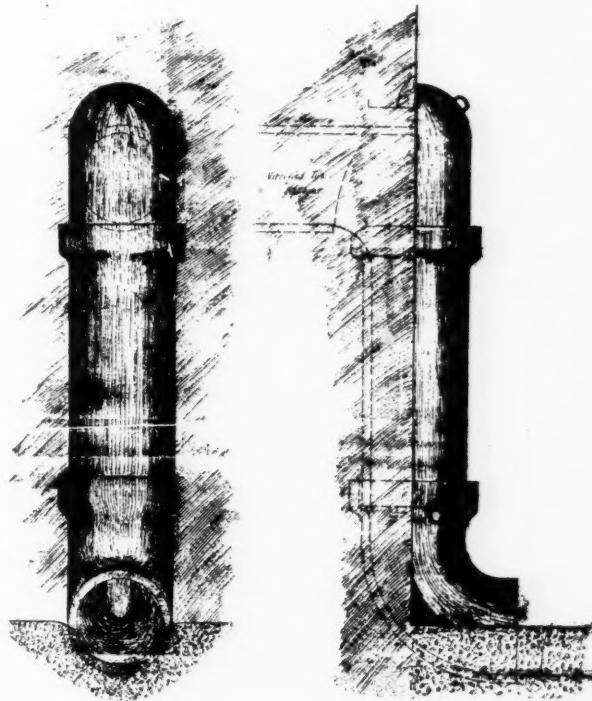
When in actual service the efficiency in terms of work done by the pumps was as follows:

Plant.	Reservoir.	Pumps.	Water No. of gals.- sec.	Efficiency	
				Height pumped.	Guaran- teed. ft.
Grand Champ	Bron.....	4	93	191 ft.	76% 80.3
Saint-Clair	Saint-Clair ..	3	55	165 "	74 76.2
"	Montessuy ..	1	22	330 "	72 74.2
"	Rilleux	2	16	551 "	70 73.4
"	La Sarra ...	2	17	449 "	72 74.8

NEW DROP MANHOLE DETAIL

THERE was adopted this year at Summit, N. J., a new idea in the construction of drop manholes which is entirely novel, so far as we are aware. The idea is a simple one and is plainly indicated by the accompanying illustration. This shows the drop pipe to be built into the inside face of the manhole, about one-half the circumference of the pipe being embedded in the masonry and the other half protruding into the manhole. Instead of the ordinary elbow or inspection Y at the junction of the horizontal and the drop section, Mr. John S. Stiger, the city engineer, has substituted a connecting channel built in the masonry wall of the manhole itself, only straight pipe being used, the opening in the manhole wall thus formed being closed by a removable cast-iron hood, the top of which catches upon a hook or "hanger plate" built into the wall which holds it in position. The advantage of this is that, when the hood is removed, both the line of sewer above the manhole and the drop section are open to inspection throughout their length and can be cleaned of any obstacles which may lodge in them.

With the more common style of drop manhole, in which the drop and the sewer line above the manhole were connected by a 90-degree bend, or by a Y and a 45-degree bend, inspection of the drop section was impossible, and where the bend was used instead of the Y, inspection of the sewer line above the manhole was likewise impossible.



DROP PIPE FOR DROP MANHOLE

Another idea which Mr. Stiger believes to be original with himself is his method for securing tight joints in pipe sewers. This he attempts to do, and succeeds in doing, he says, by making tightness of the sewers one of the requirements of the specifications, no sewer line being accepted until it has been proved to be tight by an actual test—usually by filling the trench with 2 or 3 feet of water, which is allowed to stand over the sewer for some time, during which no percolating of water into the section under test is permitted. Given an acceptable lot of sewer pipes, and the additional requirements for an acceptable sewer are that these should be laid to correct line and grade and shall be tight. The correctness of line and grade can be determined by inspection after the completion of the sewer, and the tightness by a test as just described; consequently the necessity for inspectors during construction is entirely obviated.

Mr. Stiger finds this plan to work out successfully and recommends it to other engineers.

NEW YORK FIRE ALARM SYSTEM

**System Antiquated and Susceptible to Serious Interruption—
Cables To Be in Subways—One Special
Box to Each Circuit**

THE rehabilitation and reconstruction of the fire alarm system of New York City, which on numerous occasions has been criticized by the National Board of Fire Underwriters and other organizations and citizens familiar with the facts, bids fair to be an actual reality within two or three years. The preparation of plans has progressed to such an extent that it now seems a certainty that work can be commenced on the system in Manhattan in the early spring, by removing the cables from the elevated structures and placing them in subways.

The importance of this first move may be appreciated when one realizes that an accident on the Third Avenue Elevated Railroad which rendered unserviceable the fire alarm cables located thereon would put out of commission two-thirds of the entire system. Much damage would also result from a break along the Ninth Avenue Elevated road, and conditions in Brooklyn, especially in the vicinity of Myrtle and Fulton Streets, are, if possible, even worse, the use of open wire along the elevated structures there adding to the danger. Taken in connection with these, the fact that the central station of Manhattan itself is located in a non-fireproof building, and thus in peril of putting the entire system in the borough out of operation, illustrates the grave need for a complete change in conditions.

Back in 1906 preliminary plans, specifications and estimates were started by Messrs. John J. Carty and Kempster B. Miller, when the Board of Estimate and Apportionment of the city authorized a \$25,000 bond issue for the purpose; and these were submitted by the Fire Commissioner to the board September 25, 1907. The Chief Engineer of the board, Nelson P. Lewis, approved the plans, which called for an expenditure of \$2,680,000 for an entirely new system; but the board failed to provide means for carrying on the work further until May 28, 1909, when a bond issue of \$100,000 was authorized "to provide means for the preparation of detailed plans and specifications for a new fire alarm system in the Borough of Manhattan, said plans to include the location and character of the ducts required, such subways as the city must build for itself, the type and character and detailed nature of the intended equipment, together with plans of such central and subordinate stations as might be required." This resolution was concurred in by the Board of Aldermen on June 8, 1909, and approved by the Mayor June 21, 1909.

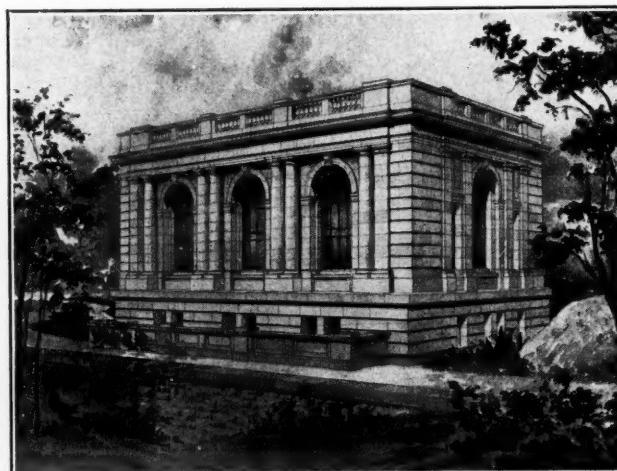
Following this action the city engaged J. C. Rennard, an electrical engineer who, until 1907, had been Assistant Chief Engineer of the New York Telephone Company, and since then a practicing consulting electrical engineer; and he plans to follow along the lines of the telephone system in putting in the new fire alarm system, using a separate pair of wires from every fire alarm box in the city to the central station, instead of having a large number of boxes on each circuit, as is now the case. This is but one of the features which are planned not only to put the now antiquated system on a par with those of other cities of the world, but to place it far in advance of most of them.

There are now approximately 1,000 fire alarm boxes in the Borough of Manhattan, of which only 80 are of the non-interfering, successive type. These are to be superseded by 2,000 boxes of the most modern type, making it possible to place one on every alternate street corner so that there will be an alarm box within a block in case of a fire at any point. At present each circuit contains from 20 to 100 boxes, and when several boxes are pulled simultaneously, particularly when this is for the same fire, and the signals reach headquarters at the same time, it requires much figuring on the

part of the expert operator to interpret the alarm. This trouble would be obviated with up-to-date non-interfering successive boxes, for in case several boxes were registered at approximately the same time all would hold off until the first number had been completed, and they would then ring in in order, this being governed largely by the strength of the magnets.

Considerable difficulty has been experienced in locating the existing wires and conduits, as the records have not been kept in the best shape, which, taken in connection with the poor general arrangement of the system, the number of boxes on separate circuits and the interlacing of the various circuits, has made this work somewhat of a puzzle. In fact, it has been pointed out that it is surprising that the system works at all instead of failing only occasionally. With the poor insulations and other defects it is almost impossible to locate a break or "ground" without going over 40 or 50 miles of wire, and all of this is liable to be all out of service for some time. With the proper testing instruments there should be no trouble in determining almost the exact location of the worst trouble.

A general plan has been outlined to Fire Commissioner Waldo by the electrical engineer, but the details of this must be worked out and an engineering study made of it before it can be presented to the Board of Estimate as a definite



PROPOSED CENTRAL STATION IN CENTRAL PARK

scheme. Instead of following out the plan described by Carty & Miller, of having ten boxes on a circuit, there will be only one, connected by telephone cables, paper insulated. The idea would be to have a box of simple construction, and the limiting of the number of boxes would dispense with the use of expensive cable. The paper insulated cable costs approximately \$25 per pair of wires per mile, while the rubber insulated cable is about \$290 per mile. Boxes on the single circuit cost but \$50 and on series-circuit \$165.

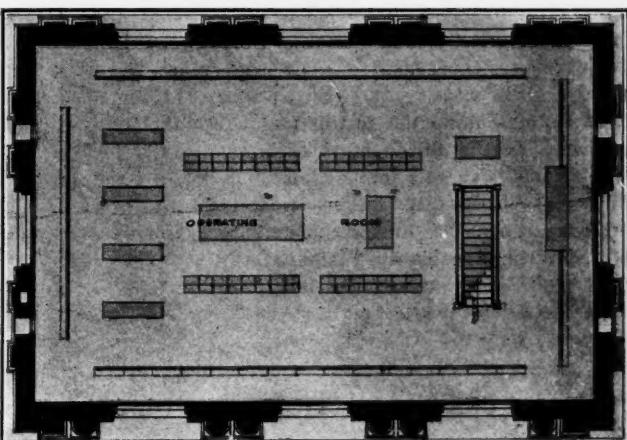
A special box, such as has been made by the Western Electric Company, with changes which may be suggested, will probably be adopted for use on the new system. In each is to be installed the simplest form of clockwork train and a brake wheel by whose notched circumference a make-and-break signal corresponding to the number of the box will be made and transmitted. In each box there will also be a telephone connection, so that a cord and instrument may be connected and the platform operator at headquarters communicated with. Eventually it is the intention of the Fire Department officials to arrange for a complete intercommunicating telephone system throughout the department, using its own wires and switchboards, that it may thus be independent of the telephone company which now, under lease, maintains a special service for the Fire Department. The use of the standard telephone cable for the fire alarm telegraph at this time will enable this improvement to be made with comparatively little expense and trouble.

It is proposed to erect a fireproof central station in Central

Park, to be used solely for this purpose. The transmission system by which the signals are sent out to the various fire houses, fire boats and pumping stations is in fairly good shape and will be in perfect working order when better conductors and more perfect insulation is provided and the circuits are rearranged. The proposed new system will also give the Fire Department greater control over the auxiliary or special alarm systems maintained by private companies, which cause false alarms and are often a detriment to the system. It is intended to have these send alarms direct to the central station under plans yet to be arranged.

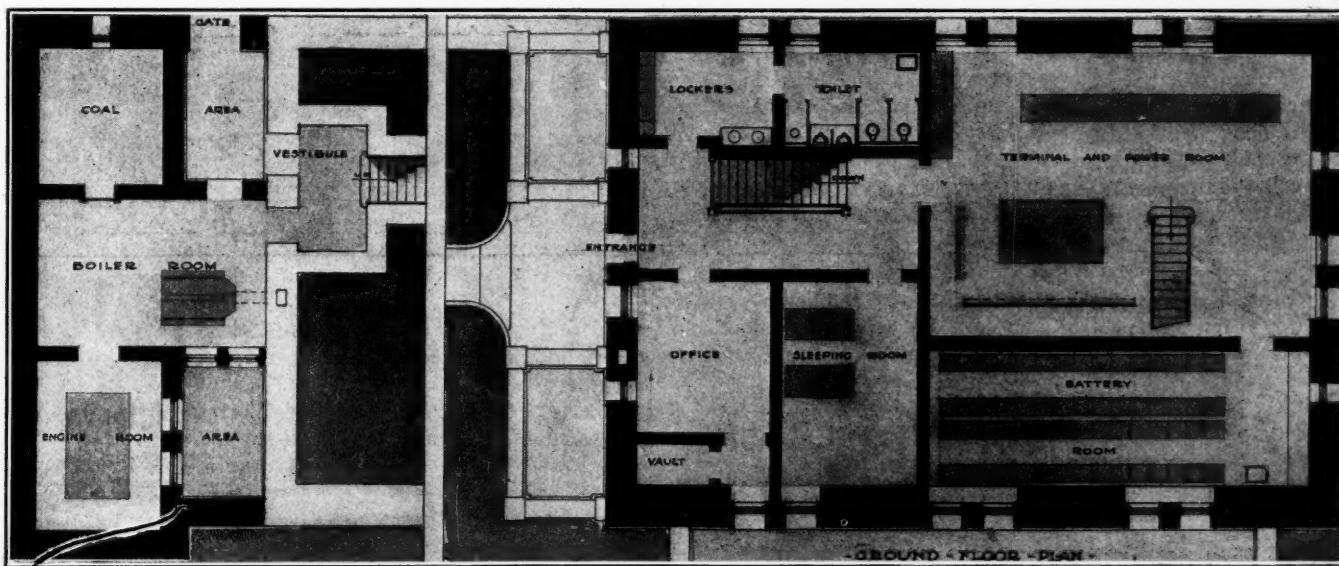
Care will be used in planning the general distribution system to place the circuits to boxes in contiguous territory in different cables so that the failure of one cable will not disable all boxes in one location.

Each of the direct wires from the boxes is to be connected at the central station with a telephone spring jack, and a certain number, probably ten, will be connected with a sounder. The operator will then be enabled, in case two or more alarms were coming in simultaneously, to connect the separate lines to pen or punch registers in order to obtain a clear and permanent record without the slightest confusion. There would be no need of any complicated signaling system or apparatus to



PROPOSED CENTRAL OFFICE BUILDING. PLAN OF OPERATING FLOOR

for running its wires along the elevated lines. The Manhattan elevated roads charge no rental. The first work in this borough will be to place these wires under ground, an appropriation of \$150,000, which was passed in 1906, for placing

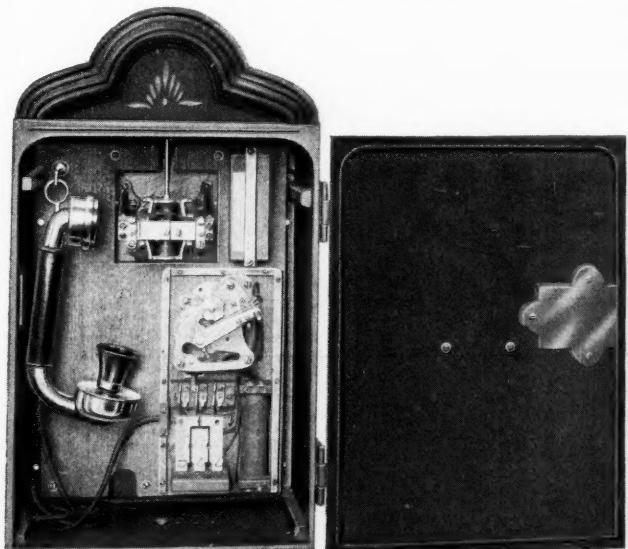


PLAN OF ANNEX

PROPOSED CENTRAL OFFICE BUILDING; GROUND FLOOR PLAN

prevent interference, as a simple push button and annunciator would suffice on a direct line.

In Brooklyn the Fire Department is compelled to pay the Brooklyn Rapid Transit Company \$7,500 per annum as a lease



FIRE ALARM AND TELEPHONE BOX SUCH AS WILL PROBABLY BE USED

electrical conductors in subways having been tied up until recently. An instance of conditions in Brooklyn is afforded by a petition sent recently to Mayor W. J. Gaynor by citizens of a certain section, asking for the installation of two more boxes. This was referred to the Fire Commissioner, and an investigation disclosed the fact that there are two circuits which serve this entire section, on one of which there are 94 boxes, while on the other there are 99 boxes. That it is inadvisable to connect any more goes without saying; in fact, immediate steps should be taken to care more adequately for the boxes already installed.

In addition to the \$150,000 appropriated for the Borough of Brooklyn, as stated above, there are available \$200,000 for installation in Manhattan, \$7,000 for cable and other work in Richmond Borough, and \$14,000, which was appropriated last year, for the purchase of fire alarm signal boxes for the Greater City. The last-named amount will purchase quite a number of the newly-designed boxes, but none of it can be expended for any other purpose.

The underground system at the close of 1909, according to the last annual report of Fire Commissioner Waldo, consisted in the Borough of Manhattan of 1,203.24 miles of conductor laid in 138.75 miles of subway duct. During the year 62,845 feet of cable were pulled in, of which 35,768 were for alterations and repairs and 6,560 for extending the system. In the Borough of the Bronx 173.666 feet of wire were strung for alterations and repairs to the system and 227,990 feet of wire

were taken down. For alterations and repairs 5,460 feet of aerial cable were strung. In the Borough of Brooklyn the fire alarm system consisted of 1,090 $\frac{1}{2}$ miles of aerial conductor. There were 289,003 feet of wire used for repairs and 60,720 for extending the system and 11,880 feet of wire were removed. In the Borough of Richmond 36,180 feet of wire were strung, also 810 feet of aerial cable. In the Borough of Queens 39,040 feet of wire were used for repairs. The Fire Department has just completed the laying of two miles of underground cable in Flatbush, with 18 new fire alarm boxes, pole lines having been taken down. Last month bids were received for furnishing cable and wire for the fire alarm telegraph of the five boroughs.

REFUSE COLLECTION IN ENGLAND

IN England the house refuse is not separated, but garbage, ashes and all other materials are deposited in the same receptacle. In London, in the Borough of St. Pancras, the collection is carried on by employees of the local authority. The collection of street refuse also is made by Borough Council's employees, but its removal from the streets is by contract. Each contractor bids to remove the whole of the street refuse in one of the eight wards of the borough for a stated sum during one year.

For removing house refuse, wagons are used having a capacity of five cubic yards, two men accompanying each wagon. The collection is made during the day time, but in certain localities police regulations forbid collections after 10 a. m. and it is confined between 7 and 10 in the morning. Generally but one collection a week is made, although in some of the more densely occupied localities this is increased to two or three times, and from certain institutions it is collected daily.

In the Borough of St. Marylebone the house refuse is collected and disposed of by contract, usually running for one, two or three years. The contract price for the year ending March 31, 1910, was \$51,930. The rubbish is carried from the houses to the wagons in strong wicker baskets or metal receptacles. As in the case of St. Pancras, the collection is made over most of the territory during the entire day, but ceases after 10 a. m. in certain business localities.

In Islington the material is removed by employees of the borough under contract of the borough engineer. The borough is divided into districts each containing about 2,400 houses, and each district is served by a gang consisting of four loaders, three drivers and three wagons. The time of collection is from 7.30 a. m. to 5.30 p. m. Householders are required to provide one or more movable receptacles of metal having a capacity of not more than two cubic feet, but sufficient in number to hold one week's accumulation of refuse. Refuse from restaurants, hotels, etc., is collected two or three times a week and in some cases daily; but general house refuse is collected but once a week. A charge of 4 cents a basket is made for removing trade refuse. All refuse is carted to stations adjoining railways and is there dumped into railway cars and disposed of to farmers and others along the line of the road. In Paddington Borough refuse is collected from about nine-tenths of the area by the Borough Council and from the remaining one-tenth by contractors. Collection is made between 6 a. m. and 6 p. m.

In Liverpool the refuse is collected by the city by day labor exclusively. It approximates 1,000 tons per day. It is burned in municipal destructors; except that what is suitable is sold as fertilizer. This includes refuse from fruit markets, fish markets, etc.

In Edinburgh the refuse is handled by the municipal employees. The city ordinances require that all fine waste material be placed on a street or court in a pail, bucket or other suitable vessel; that all waste paper be tied up in bundles, and that these be placed on the street or court between 6.30 in the morning and the time the refuse wagon makes its call; and that the receptacles be removed from the street within thirty

minutes after being emptied. There are 581 men and 54 boys employed in this work at an average pay of \$6.10 and \$3 per week, respectively. Of the 125,000 tons of refuse last year, farmers took 21,600 tons of street sweepings and stable manure and a destructor consumed about 15,500 tons; but the bulk of the refuse was used for filling in arable or pasture land about seven and one-half miles from the city. During the year the department received from farmers \$3,031 for street sweepings and \$1,634 for stable manure, delivered by rail; the railway freight being 16 cents per ton on this material and 20 cents per ton on that used for filling as above referred to: The cost of burning in the destructor was 63 cents per ton. Deducting revenues from the sale of manure, clinker, old tin, etc., and other revenues, making in all about \$16,997, the net cost of cleaning the streets and cleaning and disposing of the refuse was \$244,051. The city is expecting to dump its refuse in the future in exhausted limestone quarries about ten and one-half miles from the city limits, purchased for this purpose.

PRODIGALITY IN BOND ISSUES

UNDER the above title the *Financier*, of New York, issues a word of warning against the freedom and apparent thoughtlessness with which municipalities are issuing bonds in constantly increasing quantities. In November, it states, not less than 150 municipalities voted on the proposition to issue corporate bonds, and the amount so voted approximated \$110,000,000. It is true that the laws surrounding the ordinary issues of municipal bonds limit the total amount which may be out at any one time and thus protect the investor. Moreover, most of the cities of this country are growing so rapidly that by the time a bond issue which has been authorized has reached the investor's hands the value of the assessed property, which is practically offered as security for the bonds, has already increased considerably beyond what it was when the issue was authorized.

As a conservative business proposition on the part of the city, however, certain at least of these issues would seem not to merit approval. "There does not seem to be much wisdom," says the *Financier*, "in issuing 40-year and 50-year bonds bearing a goodly rate of interest to provide for street pavements the life of which is not over 18 to 20 years. Neither can we discover financial acumen in an issue of long-term bonds for any temporary or short-lived purpose."

We believe it is generally recognized that the theoretically correct principle to be followed in issuing bonds is to make their life terminate with the service which the money raised upon them is to render to the city. It is, of course, difficult if not impossible to follow this rule exactly, since it cannot be foreseen with certainty just how long a life a pavement, a pumping engine or a sewer system may have. Moreover, the plant to be purchased is frequently one composed of several units of varying length of life; for example, pumps, pumping stations, standpipes and reservoirs almost invariably have lengths of life differing greatly from each other, and yet it might be desirable to include all in one bond issue for water works construction. Again, while the wearing surface of a pavement might have a life of only eight or ten years, the concrete foundation under it might well exist for 100 years or more unless removed for some reason outside of the necessities of the pavement as such.

Nevertheless, in spite of the difficulties of making any exact determinations of probable durability of useful service, the rule should, in our opinion, be adhered to as closely as possible. For instance, current expenses of a department should never be paid for by bond issues, as is done in New York City, but there should be a reasonable measure of equality between length of life of bonds and that of the utility which they are to purchase. Otherwise the city is either placing upon its posterity a burden without corresponding benefits which it has no right to impose, or, if the bonds be of too short life, they are assuming for the present generation more than its share of cost of a utility which its successors will continue to enjoy.

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DECEMBER 21, 1910

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Bituminous Nomenclature

THE matter of nomenclature of bituminous roads and road terms seems to be not much nearer a definite solution than it was six months ago, but several engineers and others who are directly interested in the matter are working towards a solution of the difficulty. What appears to stand most in the way of such agreement at the present time is the inability of manufacturers of and dealers in various kinds of bituminous materials to agree upon the definition of what is meant by bitumen, the dispute being especially between those interested in asphalt, which is obtained from nature practically ready for use, and those who obtain a similar material by distilling oils or some other system of manufacture.

It seems to us that there is no reason why a general agreement could not be had upon some of the terms involved in the description of bituminous roads and road construction, without waiting for the settlement of this matter. For instance, an agreement as to the methods of construction implied by the terms "bituminous concrete" and "bituminous

macadam" could be decided upon, omitting for the time being the decision as to what materials used as a binder would be included in this term. Especially easy should be an agreement upon some simple terms for describing the general methods of combining the binder or dust layer with the aggregate or road metal, and for describing pavements constructed or treated in these several ways.

In our December 7 issue appeared a communication suggesting a definition of the term "concrete" as applied to road construction with asphaltic or similar binders, and suggesting the substitution of "broken stone" roads for the commonly used name "macadam."

We urgently suggest to the several committees of various organizations who are working upon this problem of terminology that they attack it from the other end, leaving the definition of the word "bitumen" and the classification of the bituminous binders to be settled after the other general terms have been agreed upon.

Assessing for Street Improvements

BOSTON, MASS., is at present laboring with the problem which is vexing so many of our cities, that of satisfying the rapidly increasing demands for better roadway and sidewalk paving. Within a very few years such a popular desire has developed for permanent paving and dustless roads that the debt limits of most of our cities would be far exceeded in a single year if they should attempt to satisfy their citizens in this respect.

Boston's case has been brought to a head by the report of an expert calling attention to the unsatisfactory and "uncertified" appearance of the brick sidewalks on some of the business streets, the remedying of which has been greatly retarded by the extent to which the cost must be met out of the general tax levy, only a small part being raised by special assessment.

Our opinion concerning the problem was recently asked by one of those who are considering Boston's case and the general tenor of our reply, as it is equally applicable to other cities, is given herewith in brief.

The problem of assessing for sidewalk paving should, in our opinion, be placed upon the same basis as that for roadway paving. This was briefly discussed in an editorial of the November 9 issue. The general problem of raising funds for roadway and sidewalk paving may be considered from two points of view—one, that of absolute justice, or as near to this as can be hoped for in mundane affairs; the other that of expediency. Equal justice to property owners and to citizens at large would appear to call for a repayment to the city of a considerable part of the increased value given to property by the improvements which have given rise to such value; at least the payment should be in proportion to such increase in value, consideration being had of future as well as immediate appreciation.

However, if the city taxes are based upon assessed value, the city will reimburse itself for this increment in value to the extent of the tax rate upon the same, and this should be taken into consideration in deciding how much of the value should be repaid in special assessment. For instance, if it be assumed that the property net the owner, over and above taxes, 8 per cent in income, then this 8 per cent was really a gift to the owner from the city unless he reimburse the city in the form of a special assessment. If the owner is not to be called upon for any further assessment in connection with paving than the first cost of the original pavement then this 8 per cent might be considered as the interest on an interminable investment; but if he is to be called upon for the cost of renewal of the pavement, then the 8 per cent should be included as being a sinking fund also, to accumulate during the life of the pavement. The carrying out of this idea involves an estimate of the increased value of the property created by the improvement in question.

Policy, specially in view of the debt limitations which so irksomely restrict so many of our cities (although they are undoubtedly necessary and wise provisions), would apparently

indicate that all, or at least a large part, of the cost of street improvements should be paid by the property owners, and cities are coming to adopt this system more and more. Probably the changing from the system of the city's paying the entire cost to that of total or partial special assessment would be much more rapid if it were not for the feeling that an injustice would be done to those who have helped pay for others' improvements but have not yet had their own property thus benefited at public expense. The injustice of assessing the total cost upon the property in all cases we have already considered in previous editorials. The method of assessing total cost would therefore seem to work not only injustice but different degrees of injustice upon different owners.

It seems to us that a fair compromise between theoretical justice and the method of total assessment would be to continue practically the same method under which pavements heretofore have been laid, whatever that may be, as regards original construction of both pavements and sidewalks; but to charge a part or all of the cost of renewals or reconstruction to the property owners. If, however, but a comparatively small part of the citizens have been assessed for paving in front of their property it may be wise to disregard this entirely and adopt that method which would give the most rapid improvement in street paving with the most equitable distribution of the burden upon the property owners.

We would suggest the following method of assessing on the property owners as much as possible of both original paving and repaving, thus relieving the city treasury and at the same time proportioning the assessment to the benefit rendered. This plan is to assess the entire value of such reconstruction or original construction in the case of business streets or others where the traffic is not through traffic, but is for the benefit of the property owners thereon; but on other streets where a paving more expensive than the cheapest standard one of that municipality is required by the traffic, and this is through traffic, to confine the assessment to the cost of such cheapest standard. We do not know that a line of demarcation between through and local traffic has ever been fixed, but we would suggest that local traffic be defined as that more than 75 per cent of which stopped voluntarily within the district under consideration; and through traffic as that of which 25 per cent or less stopped voluntarily within the district. Determination under these definitions involves a traffic census, and would furnish an argument for this, in addition to those advanced in our recent discussion of the advisability of such a census. It would perhaps be even better to regulate the assessment according to a running scale, proportioning it to the amount of traffic between 25 per cent and 75 per cent which was local; that is, the assessment would consist of two parts, one the cost of the cheapest standard pavement, the other the percentage of the difference between this cost and that of the pavement actually laid which the excess of local traffic over 25 per cent bears to 50 per cent of the total traffic.

PRIVATE STREET LIGHTING

THE record of public lighting of city streets does not always furnish an adequate idea of the appearance of these streets, since the majority of the most brilliantly lighted business streets of the country owe a large part of their illumination to privately maintained lights. If all the private lights on the Great White Way of New York City should be extinguished, for example, this section of Broadway would be found no more brilliantly lighted than many other sections of the city.

A town in Indiana has apparently recognized the advisability of relying partly upon private individuals for street lighting and is dividing the expense with the citizens, the town furnishing the current from the municipal plant and the citizens furnishing one lamp each to be placed on the front porch. This idea of co-operation seems worth trying in other cities where petitions are made by the citizens for additional lighting in residence streets. On business streets similar arrangements, with modifications, have been adopted in several cities.

REMOVING SNOW FROM SIDEWALKS

Methods Employed in La Crosse, Wis., and Comments Upon the Same—Composition of Crews—Notifying Owners—Opening Gutters

By GEORGE FALK, Street Commissioner

THE proper cleaning of snow from sidewalks offers considerable difficulty to officials for its proper solution. Where the law requires the authorities to take charge of the cleaning of all walks snow plows can be used to advantage, at least once or twice in the season. After this the snow will pack on the sides and roll back onto the walk. Hand labor must then be installed if the walk is to be cleaned full width. Where it is a question of cleaning walks which property owners are required to clean, but do not, it is not generally practicable to use plows, since the walks which are to be cleaned by the city are widely scattered, and in such cases also hand cleaning must be resorted to.

Where there are sodded strips snow should be removed at least one foot beyond each edge of the sidewalk paving, especially where the lots adjoining are higher than the walks, as this will prevent ice from accumulating after thawing begins.

Immediately after a snow fall all public walks, street corners and street and alley crossings should be cleaned in a systematic way. The work is laid out in routes, with from two to four men on each route, depending upon the depth of snowfall. When possible, the men selected are those living nearest to the respective stations. This makes it possible for the men to enjoy warm meals at their homes, and minimize the amount of time and energy consumed in going between their home and work. Men are not required to report at headquarters, as this means much unnecessary walking, but under the system followed each man can begin his day's work, not at headquarters, but at the point where he is to be employed during that day. Men furnish their own shovels, and there is therefore no reason for their leaving these at headquarters at night.

It is sometimes difficult to judge correctly as to what constitutes a compliance with the requirements of a clean sidewalk. Some property owners appear to think that a path along the center of the walk is sufficient, while others wait until the snow has been tramped hard and then remove the loose snow on either side. Neither of these should be tolerated by the authorities, as the first thaw will cause ice to form and make a most dangerous condition which will result in damage suits against the city.

The length of routes and sizes of crews for shoveling private sidewalks should be increased over those for the regular public shoveling. About eight men and one foreman for a crew have been found to be the most desirable. The foreman should locate, measure and describe the work. For the measurements he may use a ten-foot stick and locate the work by giving the distance of its beginning from the nearest corner and the number of front feet shoveled. For example: "N. W. Cor. Sixth and State, commence north 100 ft.; 50 ft.; skip 100 ft.; 50 ft."; this being interpreted as meaning: beginning on the northwest corner of Sixth and State streets, the first 100 feet running north was shoveled by the owner, the next 50 feet shoveled by the city, the following 100 feet shoveled by the owner and the last fifty feet by the city. The foreman hands these reports in at headquarters in a note book furnished him for that purpose, and these notes are copied by the sidewalk inspector, both foreman and inspector checking back for mistakes. The inspector then finds the exact locations of the sidewalks shoveled and the owner responsible for each, plats used for this purpose being found in the Tax Commissioner's office, noting name of owner, lot and block number, and adds the date the work was done, whether loose snow, drifts or ridges, the number of linear feet shoveled and the cost. To correct any mistakes made by the city force a postal card printed for this purpose should be sent to each owner of the properties cleaned.

giving information of location, amount of work done and cost; the owner having the option of paying this cost at once or having the same charged to taxes. These cards are very much appreciated by owners whose leases call for their tenants to clean the sidewalks. The card used in La Crosse is as follows:

LA CROSSE, WIS.,, 191

DEAR SIR:

You are hereby notified that snow has been removed by direction of the Board of Public Works, in accordance with provisions of city charter and ordinances governing the same, from your walk abutting lot block, addition, the charge for such work amounting to \$.....

Unless this is paid by 191., a special assessment will be made against the property and charged to taxes.

All snow and ICE RIDGES, as well as loose snow must be removed from sidewalks (FULL WIDTH) at once after each and every snow fall. SAND OR SALT MUST BE USED ON ICY SIDEWALKS.

Respectfully,

BOARD OF PUBLIC WORKS.

After the cleaning of all walks, gutters should be opened for a width of at least 24 inches. Generally large banks of snow have accumulated from either sidewalks or street car tracks. Where there is a street car track or the snow is being removed from the roadway these banks of snow should, of course, be hauled away; while on streets having no tracks or where the snow is not removed they may be scattered in the center of the roadway. The saving in cost of removing loose snow from gutters rather than removing ice by use of picks is an item not to be overlooked. Where gutters are kept open sudden thaws will find a good outlet; but if the gutter is not opened ice is apt to form to a greater or less depth.

In cleaning streets and sidewalks snow shovellers should be instructed in the special importance of keeping free all catch-basin openings, hydrants and mail, police and fire alarm boxes.

SNOW REMOVAL IN NEW YORK

How Contractor Organizes Force—Kinds of Carts and Trucks Used—Cost of Labor and Trucking—Profits—Both Contractor and City Robbed

By WALTER G. TURINI

OF the many municipal undertakings by and in the City of New York which are startling in their magnitude, not the least impressive is the work of removing snow from the streets after a heavy snow fall, the amount removed from a single storm frequently totaling nearly 1,000,000 cubic yards, all removed in a few days and transported from the heart of the city to the river front.

The writer will endeavor in the following article to describe step by step the methods employed by a large snow removal contractor from the time he is awarded the contract until he is officially notified by the Street Cleaning Department to cease operations, special reference in this being had to work done in the winter of 1909-10.

In some years past the contracts for snow removal have been let early in the year; that is, in the middle of September or two or three months before the first heavy snow fall ordinarily arrives. This gives the successful contractor several weeks in which to perfect his organization for the work before him. One of the most important problems in connection with this work is to get and keep in intimate touch with thousands of men and owners of carts who can be relied upon to report for work on an hour's notice. The contractor usually first looks up a corps of trustworthy superintendents—those who can be depended upon to look out for the contractor's interests. These he assigns to their respective snow districts, of which there were last year eleven on Manhattan Island. This is done very shortly after he has received the contract.

The contractor's superintendent is generally a very aggressive individual accustomed to the handling of large bodies of men and physically able to stand exposure to blizzards for several days and nights running with little or no time for sleep. This superintendent must become familiar with his district,

know the truckmen whom he can depend upon to give him the number of trucks he will need, with which truckmen he negotiates weeks or months ahead of the first snowstorm. It is usually impracticable to employ ahead of time more than a small nucleus of the laborers needed, since most of those who make up the large gangs of snow shovellers are those temporarily out of work who cannot be engaged or depended upon to keep their engagements more than a day or two ahead.

With this preliminary part of his work laid out the superintendent holds himself in readiness for the first snow fall and the orders of the city to begin work. When notice is received that there is sufficient depth of snow—generally 3 inches—to call for removal the superintendents assemble in the contractor's office to receive final instructions and also the necessary tickets, punches, etc., which have been prepared long beforehand and kept in readiness. Each superintendent is assigned a timekeeper and checkers for each gang in his district. A headquarters is established in each district, usually a hastily improvised office in a vacant store or contractor's shanty, and at these headquarters the various teams, laborers, etc., report. Each district superintendent also receives from the Street Cleaning Department superintendent of his district small books naming the streets and sections of streets to be cleaned and the order in which they are to be attacked.

About 7 o'clock in the morning after notice that snow removal is to begin, small armies of shovellers appear and are divided into gangs for the work. The number of gangs varies from three to seven, according to the area of the district, each gang containing about 50 men. The foremen have already been arranged for, one for each gang, and the laborers immediately go to their respective starting points as designated by the Street Cleaning Department and begin piling snow until the trucks shall arrive.

Each laborer is provided with a labor ticket, which is about the size of a large business card and contains numbers, similar to those found on many street-car transfers, indicating the hours from one to twelve. As stated before, each gang is provided with a checker, and it is the duty of these to punch the tickets held by the men in that gang each hour while they are at work. At the end of each day's work these tickets are turned in to the timekeeper, who gives in exchange for them a pay ticket in which is punched the number of hours worked, the punch used for this being a private punch of the timekeeper. As a precaution the checker's punches are turned in every night and new ones given out the following morning. The pay tickets given the men are good for the wages called for on presentation at the contractor's pay offices. Payment is made every day when desired, and as there are several thousand laborers this frequently means some delay in line in order to draw the day's wages. This delay, which seems to be unavoidable, has resulted in the practice of buying up pay tickets at a discount, generally of about 30 per cent. It is probable also that speculators in these tickets frequent saloons and take advantage of the men's desire for cash on the spot. This practice is not countenanced by the contractor and the paymasters are given instructions not to make payment to any man presenting more than one ticket for a given day, and the speculator is, therefore, forced to distribute the tickets among his friends in order to have them cashed.

Of the various trucks and carts used for carting the snow the regulation brick truck used in this city and holding about 4 yards of snow is the most profitable to the contractor, not only because it carries a larger quantity than most other vehicles, but on account of the ease and rapidity with which it dumps off the dock. In order to dump one of these it is necessary only for the driver to unhook the box and back his team with some force against the dock string-piece, when the body slides backward and dumps the load. Some truckmen, for want of other vehicles, use bottom-dump carts, but these are the most impractical for dumping, as extra labor is required to shovel the snow into the river, and, moreover, it is frequently difficult for a wagon to be hauled away from the pile of dumped snow.

Next to the brick truck the ordinary back-dumping sand truck is to be recommended, although this rarely holds over 3 yards of snow, even with high side boards on.

On the eleventh day of last February all snow removal bids were thrown out by the Board of Estimate, leaving the Street Cleaning Department with no arrangement for snow removal. The same evening a severe snowstorm struck the city and 6 inches had fallen before the next morning. When the severity of the storm was realized Street Cleaning Commissioner Edwards got in touch with a large contractor and before midnight had awarded him a three-day emergency contract with the privilege of renewing the same for three days more. By 6 o'clock the following morning the contractor had his hundreds of trucks and thousands of men upon the street, with headquarters provided, gangs located, labor tickets printed and all the essential details arranged for a contract involving several hundred thousands of dollars. The contractor continued his work for six days and nights, during which he removed all of the snow from the more important districts.

The city paid the contractor 75 cents a yard for this particular contract, and the following figures will give an idea of the enormous profit to the contractor at that figure, taking, for example, the eleventh snow district, with the work in which the writer was connected. This district starts at East 106th Street and runs north to the Harlem River and from Fifth Avenue east to the East River. This district contains about 18 miles of streets scheduled to be cleaned. Three gangs were designated to do the work. One hundred and fifty labor tickets were given out each day of the six, or 900 tickets in all, averaging nine hours each. Payment was made at 20 cents per hour, making the total payment for labor \$1,620. In addition the superintendent, at \$10 a day, received \$60; timekeeper, at 45 cents per hour, \$32.40; three checkers, at 30 cents per hour, \$54; six foremen, at \$2.40 a day, \$86.40; horse and buggy hire, six days at \$5 a day, \$30; incidental expenses, car fare, etc., \$10; making a total of \$1,892.80. This gives the cost to the contractor for labor. The average number of trucks working during the six days was 145, or 870 truck-days. The average capacity of the trucks was $3\frac{1}{3}$ yards and the average number of loads 14 a day. The truckmen were paid 30 cents a cubic yard, giving a total payment of \$12,180 for 40,600 cubic yards. Adding to this the \$1,892.80 for labor and \$50 for tickets and office hire, we have a total cost of \$14,122.80. With payment at the rate of 75 cents a yard, the contractor received from the city \$30,450, making a profit of \$16,327.20 in six days in only one district. A conservative estimate for the entire city would make this \$190,000 for the six days' labor, and with practically no plant used, even the picks and shovels being furnished by the laborers themselves. The individual truckmen, paid at the rate of 30 cents a yard, averaged about \$14 a day per team, with which they are well satisfied.

During last winter the Street Cleaning Department attempted to move one snow fall by its own teams greatly augmented by the hiring of additional outside trucks and men, but this did not prove either very successful or very profitable. Red tape has always been a serious drawback to such attempts by the city. The laborer who is forced to shovel snow usually cannot afford to wait two or three weeks for his money, as the city requires him to do. Likewise the small truck owner is required to wait the same length of time for his pay. On the other hand, the contractor who undertakes such work is prepared to pay his men each night and the truckmen on the day following the completion of cleaning up after one storm. For this reason the city finds much more difficulty in obtaining the necessary trucks and men than does the private contractor.

It is apparent, however, that if the Street Cleaning Department could be relieved of these drawbacks and could undertake the work in the same way as the private contractor it might save hundreds of thousands of dollars out of the million or two which it spends each winter for snow removal.

There is one other point which is very important in this connection, however, and that is the one of graft. There prob-

ably never has been and never will be any snow-removal work without a great amount of fraud perpetrated against both contractor and city where the work is done by contract, and probably a still larger amount where the city itself undertakes the work. All kinds of check systems, "spotters," private detective concerns and the like have been used in the efforts to prevent stealing, but it is generally recognized that none have proved successful. The class of men which it is necessary to hire, the haste with which the gangs are gotten together, the temporary employment of the foremen and checkers, the necessity for daily payments without time for inspection of payrolls, the employment of all kinds and descriptions of vehicles, the carrying on of work in the darkness of night as well as by day, and the general principle that the work must not stop for anything on earth, but, even though it is known that a man is stealing, he must be continued at the work—all these are elements in the difficulty of preventing the robbery of the contractor, the city or whoever is directly or indirectly paying for the work which is done.

SEWAGE TREATMENT IN NEW JERSEY

Leads All States in Preventing Stream Pollution—Brief Description of Seventy-Four Plants—Decreasing Typhoid Death Rates

THE twenty-third annual report of the Board of Health of the State of New Jersey, which has recently been issued, contains among other very interesting matter brief descriptions of all the sewage disposal plants of any importance which were in operation or under construction in the State at the time the report was prepared. It shows that there were 63 public and semi-public sewage purification plants in the State, with 14 additional plants then under construction and nearing completion. The report states: "Purification works are being installed on various sewerage systems which are already in operation, and the board has wisely refused to approve plans for new sewerage systems unless disposal plants are provided for therein. It is no vain boast that this State is far in advance of all others in this work of cleaning up its streams, the Passaic River, for which this board is not responsible, being the exception."

The report contains a list of these plants, which we reproduce herewith. It will be noticed that all but 12 of these employ septic tanks, and one of these 12 has what is called a "settling tank." Two plants, one at a factory in Burlington (The Thomas Devlin Manufacturing Company) and one at a sanatorium in Glen Gardner, have sprinkling filter installations. In the former Taylor's sprinkling nozzles are used, and in the latter splashing disks. Quite a percentage of the plants rely upon septic tanks alone for purifying the sewage sufficiently to permit its discharge into streams. Eighteen plants give the effluent a second treatment in contact beds, double contact being applied in several cases. Most of the others employ intermittent sand filtration or broad irrigation. Ten plants subject the sewage to a third treatment of sand filtration or to disinfection, in addition to those which provide double contact in addition to septic tank treatment.

A most satisfactory decrease in typhoid death rates is shown by the records for the past 30 years, a part of the credit for which is probably due to the decreased pollution of the streams, part to increasing attention to purity of water supplies and part to general sanitation. During the five years from 1879 to 1883 inclusive the death rate per 10,000 was 4.7, and the average death rates for each five-year period since then has been as follows: 4.5, 4.3, 3.0, 2.1 and, in 1904 to 1908, 1.8. It is thus seen that the average death rate during the latter period was less than 40 per cent of that during the period first named. The highest annual rate was 7.4 in 1882 and the lowest was 1.6 in 1908. Prior to 1897 there was not a single year when the rate did not exceed three per 10,000, and since 1899 there have been only two years when it has exceeded 2.0, in one of which it was 2.2 and in the other 2.1.

PRINCIPAL SEWAGE DISPOSAL PLANTS OF THE STATE OF NEW JERSEY

PLACE	SERVICE	SYSTEM	APPROX. COST	ENGINEER
Aldene.....	Factory.....	Septic Tank, Contact Filter.....		G. K. Hooper
Allenhurst.....	Municipality.....	Septic Tank.....	\$4,000.00	G. E. Hill.
Asbury Park.....	Municipality.....	Septic Tank.....	27,272.77	G. E. Hill.
Asyla.....	Almshouse & Asylum.....	Screens, Septic Tank, Primary and Secondary Contact.....		J. H. Emlen.
Avon.....	Municipality.....	Septic Tank.....		
*Belmar.....	Municipality.....	Septic Tank.....		G. E. Hill.
*Bordentown.....	Municipality.....	Septic Tank, Primary and Secondary Contact, Sand Filtration.....	\$58,306.70	W. W. Young.
Bradley Beach.....	Municipality.....	Septic Tank.....		Niart Rogers.
Brown's Mills.....	Hotel and Cottages.....	Septic Tank and Ground Seepage.....		
Burlington.....	Municipality.....	Pump Well, Settling Tank, Land Filtration.....		
Burlington.....	Factory.....	Septic Tank, Sprinkling Filters, Sand Filtration.....		Chas. A. Blatchley.
Caldwell.....	Prison.....	Septic Tank, Tile Absorption.....		
*Carlstadt.....	Municipality.....	Septic Tank.....		Wise & Watson.
Changewater.....	Factory.....	Septic Tank, Intermittent Sand Filtration.....		F. E. Daniels.
*Chatham.....	Municipality.....	Septic Tank, Sand Filtration.....	\$16,000.00	Williams, Proctor & Potts.
Collingswood.....	Municipality.....	Septic Tank, Primary Contact.....		G. E. Hill
Deal Beach.....	Municipality.....	Septic Tank.....		E. E. Throckmorton.
Delford.....	Municipality.....	Septic Tank.....		P. E. Van Buskirk.
*East Rutherford.....	Municipality.....	Septic Tank.....		Wise & Watson.
Essex Fells.....	Municipality.....	Septic Tank, Primary Contact, Sand Filtration.....	6,000.00	Pugh & Hubbard.
Flemington.....	Municipality.....	Screens, Flush Tank, Land Filtration.....		Waring, Chapman & Farquhar.
Freehold.....	Municipality.....	Screens, Flush Tank, Land Filtration.....		Waring, Chapman & Farquhar.
*Garwood.....	Municipality.....	Septic Tank, Sand Filtration.....		Hering & Fuller.
Glen Gardner.....	Sanatorium.....	Septic Tank, Sprinkling Filters, Cinder Filtration.....	\$8,185.65	Charles McMillan.
Haddonfield.....	Municipality.....	Septic Tank, Sand Filtration.....		Alexander Potter.
Hilliards Island.....	Store and residence.....	Septic Tank, Sand Filtration.....		
Interlaken.....	Municipality.....	Septic Tank.....	\$3,700.00	G. E. Hill.
Jamesburg.....	State Home for Boys.....	Flusk Tank, Land Filtration.....		Boyd McLean.
Lakehurst.....	Hotel and Cottages.....	Septic Tank, Sand Filtration.....		J. J. R. Croes.
*Lakewood.....	Municipality.....	Septic Tank, Sand Filtration.....		
Lawrenceville.....	School.....	Septic Tank, Broad Irrigation.....		Alexander Potter.
Loch Arbour.....	Municipality.....	Septic Tank.....	\$2,950.00	G. E. Hill.
Manasquan.....	Municipality.....	Septic Tank.....	4,310.00	Pugh & Hubbard.
Merchantville.....	Municipality.....	Septic Tank, Primary Contact, Sand Filtration.....	19,500.00	G. E. Hill.
Millville.....	Municipality.....	Septic Tank, Aeration Well, Primary Contact, Disinfection.....	26,577.00	Wm. H. Boardman.
Moorestown.....	Municipality.....	Septic Tank, Primary Contact.....		Alexander Potter.
Morris Plains.....	Asylum.....	1. Screens, Broad Irrigation.....		Charles McMillan.
*Morristown.....	Municipality.....	2. Screens, Septic Tank, Sand Beds.....	\$100,000.00	Williams, Proctor & Potts.
New Lisbon.....	Almshouse.....	Septic Tank, Primary and Secondary Contact, Sand Filtration.....		Earl Thompson.
New Lisbon.....	Asylum.....	Septic Tank, Tile Absorption.....		
Newton I.....	Municipality.....	Septic Tank, Primary Contact.....	\$20,000.00	Earl Thompson.
Newton II.....	Municipality.....	Septic Tank, Sand Beds.....	10,000.00	Williams, Proctor & Potts.
Oaklyn.....	Municipality.....	Septic Tank, Sand Beds.....		Earl Thompson.
Ocean Grove.....	Municipality.....	Septic Tank, Contact Beds.....	20,400.00	Williams, Proctor & Potts.
Overbrook.....	Asylum.....	Septic Tank, Primary Contact, Sand Filtration.....		
Pemberton.....	Municipality.....	Settling Pool, Broad Irrigation.....		
Plainfield.....	Municipality.....	Septic Tank, Primary and Secondary Contact Beds.....		
Pleasantville.....	Hotel.....	Septic Tank, Primary Contact Bed.....		
Point Pleasant.....	Municipality.....	Septic Tank.....	\$3,800.00	Pugh & Hubbard.
Princeton I.....	Municipality.....	Septic Tank, Sand Filtration.....		W. A. McKenzie.
Princeton II.....	Municipality.....	Broad Irrigation.....		
Princeton III.....	Municipality.....	Broad Irrigation.....		E. B. Phelps
*Rahway.....	State Reformatory.....	Disinfection.....		T. H. Grant.
Red Bank.....	Municipality.....	Grit Chamber, Septic Tank.....		
Ridgewood.....	Municipality.....	Septic Tank, Primary Contact.....	\$20,687.77	G. E. Hill.
*Riverside.....	Municipality.....	Septic Tank, Primary Contact, Sand Filtration.....	26,398.00	Wm. H. Boardman.
*Roebling.....	Municipality.....	Septic Tank, Primary Contact, Sand Filtration.....		
Soho.....	Hospital.....	Septic Tank, Tile Absorption.....		
Spring Lake.....	Municipality.....	Three Septic Tanks.....	9,810.0	Pugh & Hubbard.
Stone Harbor.....	Municipality.....	Disinfection.....	\$600.00	E. B. Phelps.
Trenton.....	Factory.....	Septic Tank.....		Bacterial Sewage Purification Co.
Trenton.....	P. R. R. Shops.....	Septic Tank.....		Bacterial Sewage Purification Co.
Trenton.....	I. O. O. F. Home.....	Septic Tank, Sand Filtration.....		Williams, Proctor & Potts.
Verona.....	Newark City Home.....	Sub-surface Irrigation.....		
Vineland.....	Municipality.....	Settling Basin, Sand Filtration.....		Alexander Potter.
*Washington.....	Municipality.....	Septic Tank, Primary Contact, Sand Filtration.....	\$18,000.00	Williams, Proctor & Potts.
Water Witch.....	Municipality.....	Septic Tank.....	1,500.0	Bacterial Sewage Purification Co.
Wenonah I.....	Municipality.....	Septic Tank, Sand Beds.....		Wm. C. Cattell.
Wenonah II.....	Municipality.....	Septic Tank.....		Wm. C. Cattell.
Westfield.....	Municipality.....	Screens, Land Filtration.....		
Woodbury.....	Municipality.....	Detention Tidal Tank.....		William Easby.
*Woodynne.....	Municipality.....	Disinfection.....		Williams, Proctor & Potts.
Woodstown.....	Municipality.....	Sewer Tank, Sand Beds.....	\$2,722.00	G. E. Hill.

The plants marked with an were in process of construction when the report was prepared, and the cost is estimated.

MINNEAPOLIS WATER WORKS BOOKKEEPING

By a system of bookkeeping adopted by the city of Minneapolis, Minn., in 1904, all accounts were kept in the city comptroller's office, the water works books showing only revenue and expense accounts. This was thought by Registrar Young to be unsatisfactory, as it did not permit him to make any report as to the financial condition of the Water Works Department. In January, 1909, an ordinance was passed installing a system of bookkeeping prepared by Marwick, Mitchell & Company, which permits that department to make a complete financial statement, which statement is printed with the annual report.

The report for 1909 made according to this system contains four tables. Table No. 1 shows a complete report of all revenue earned. Table No. 2 is a complete statement of all

expenses of operation and maintenance. Table No. 3 shows the revenue and expense surplus account. All profits from the operation of the water works are credited to this account and all construction is charged to it. Table No. 4 shows all the assets and liabilities of the Water Works Department. Table No. 5 gives the trial balance; No. 6, revenues from 1871 to date. Table No. 7 gives a statement of the water works bonds which are outstanding. These bonds are paid out of the general sinking fund, together with interest on the same, this being considered to be offset by the service rendered the department in the form of fire hydrants, sprinkling hydrants and maintaining the same, and furnishing all water used for fire, street flushing and sprinkling and sewer flushing. Tables Nos. 8, 9, 10 and 11 show the number, make and size of meters in use, number put out of service, etc.

NEWS OF THE MUNICIPALITIES

Current Subjects of General Interest, Under Consideration by City Councils and Department Heads—Streets, Water Works, Lighting and Sanitary Matters—Fire and Police Items—Government and Finance

ROADS AND PAVEMENTS

Thinks Smooth Pavements Increase Fire Hazard

Boston, Mass.—President Bernard J. Rothwell of the Chamber of Commerce has written Mayor John F. Fitzgerald regarding the fire apparatus in Fort Hill Square and its operation with respect to the High School of Commerce which it is proposed to build in the square. Mr. Rothwell received letters from the Boston Fire Underwriters and the Master Teamsters' Association giving figures about the teaming and the engines in the square. The Chamber of Commerce, Mr. Rothwell says, has been informed by competent men that a smooth pavement, which would be slippery in wet weather, would not merely hamper the movement of the apparatus, but would be fraught with great danger to men and horses and to persons passing. One piece of apparatus in the square weighs six tons, one five tons and another more than four tons. F. E. Cabot, secretary to the Fire Underwriters, in his letter to Mr. Rothwell, says that the repaving of streets surrounding Fort Hill Square with a substance which will decrease the noise of traffic, asphalt or wooden blocks, would be objected to by fire insurance interests on account of the delay in getting out the apparatus from the engine house. It would also, he says, probably handicap the wagons of the protective department in Purchase street.

Denver Civic Center in Formation

Denver, Col.—Valuations on each parcel of property to be bought by the city for the civic center and boulevard are now being fixed by a board appointed by the District Court for the purpose. The land to be acquired for the civic center includes the blocks bounded by Broadway, Bannock street, West Fourteenth and West Colfax avenues, the Bates triangle bounded by Colfax, Cleveland place and Fifteenth street, and tracts corresponding in size and



DARK SHADING SHOWS LAND TO BE CONDEMNED

shape to the Bates triangle and Pioneer monument site, south of Fourteenth avenue and extending toward Thirteenth avenue. The plans call for the treating of this space as a cruciform plaza containing an ornamental fountain and a stadium for outdoor meetings and music. The Public Library and Pioneer monument are included in the plan and structures corresponding to these, it is planned, would eventually be erected on the opposite side of the plaza.

Sidewalk and Street Work at One Operation

Los Angeles, Cal.—Leslie R. Hewitt, State Senator-elect and also special attorney for the city Harbor Bureau, is to draw a bill, at the request of the City Council, consolidating the Vrooman and Johnson acts and thereby making it possible to improve streets and construct sidewalks at one time instead of under separate proceedings. Mr. Hewitt will introduce his bill at the next session of the Legislature.

Will Sand Much-Traveled Streets

Buffalo, N. Y.—Sand in plenty will be sprinkled on the difficult thoroughfares of the city hereafter. This is the promise of Mr. T. W. Kennedy, Deputy Street Commissioner, made in a letter to the Humane Society in response to a request from that office that certain much-traveled viaducts and steep inclines should be carefully sanded during these wintry days. In his letter Mr. Kennedy said that every one of the places mentioned in the note of the Humane Society should be sanded seven feet wide on each side of the ramps of the viaducts, thus keeping teams and other traffic to their proper sides. Mr. Kennedy said that this plan has been tried on several streets during the last few days and has met with such success that he will extend it to the thoroughfares designated by the Humane Society.

Annual Salaries for Street and Sewer Inspectors

Cincinnati, Ohio.—Among the reforms embodied in the new code will be a provision for the employment of street and sewer inspectors by the year and the placing of their positions under the civil service. Heretofore the inspectors have been employed by the day and the uncertainty of regular employment has prevented the best qualified men from seeking the positions, and as a consequence street and sewer construction has suffered, it is declared, because of the lack of proper and competent supervision on the part of the inspectors. Under the new system the inspectors will be employed by the year and will receive a salary of \$100 a month. To receive the appointment they will have to undergo a civil service examination to test their ability and experience. City Engineer Shipley outlined the needs of his department in this respect in an interview in the *Commercial Tribune* several weeks ago.

New Paving Specifications in Cincinnati

Cincinnati, Ohio.—Service Director Sundmaker and City Engineer Shipley have announced that the new specifications are practically completed. The new wood-block specifications provide for a new absorption test, the new granite specifications for a smaller block and the brick specifications will permit contractors to bid on brick varying in thickness from three to four inches.

Big Paving Case Dropped

New Albany, Ind.—The case in which the Barber Asphalt Paving Company of West Virginia sought to collect on a judgment for \$69,490 from the city of New Albany, for paving streets, was dismissed in Federal Court at Indianapolis, last week, on motion of the company.

To Widen Sixth Avenue

New York, N. Y.—The widening of the east side of Sixth avenue from Thirty-third street to Fifty-ninth street by the city is the latest plan to be offered to relieve the congestion of Fifth avenue. John D. Crimmins is the originator of the plan. A letter from Mr. Crimmins was read at a meeting of the Fifth Avenue Association, in which it was pointed out that fully two-thirds of the buildings on the east side of Sixth avenue, between Thirty-third and Fifty-ninth streets would probably soon be torn down to make way for better buildings. Mr. Crimmins stated that the city had a good chance to acquire the property at a reasonable figure before expensive buildings were put up. He said:

The new width of the widened thoroughfare would be an additional sixty feet. The present sidewalks are of sufficient width and the widening of the avenue sixty feet would make a new roadway between the elevated posts and the new curb of 80 feet.

Heavy traffic should move along a twenty-foot roadway nearest the elevated pillars as it does to-day. The extra sixty-foot width would be for north and south traffic, and this would make a roadway five feet greater than Fifth avenue. Two-thirds of the present buildings on the east side of Sixth avenue will soon be removed to make way for larger ones. The situation is advantageous, and should be considered hastily. If the authorities should determine on this plan and file a map it would check the erection of new buildings on the east side of the thoroughfare until the question was finally determined.

SEWERAGE AND SANITATION

Cameron Company Claims Royalty on Imhoff Tanks

Atlanta, Ga.—Atlanta, jubilant over the installation of its new sewage disposal plant, and having apparently surmounted all obstacles by full permission to use the patent from Dr. Imhoff, may now face suit for royalties from the Cameron septic tank people, who hold a very broad patent right, and who claim that the Imhoff system is an infringement of their patent. It is said that they will claim a royalty of 5 per cent on the entire system, which would give Atlanta a pretty heavy blow if the Cameron people force action and win. It is understood that city officials are very much worried over the situation.

No More Leniency to Spitters

Boston, Mass.—A special, more rigid and immediate enforcement of the law against spitting on sidewalks and in other public places has been ordered by Police Commissioner O'Meara in a second general order to the police, read at roll call. Beginning at once, the police will arrest without discrimination, all persons, regardless of sex or age, who are seen by them to violate the law. The special enforcement of the law will be thorough and continuous, as the Police Commissioner believes the time has come to remove the limitations suggested in the instructions issued to the police on Nov. 15. That all who use the city streets may thoroughly understand the situation, Commissioner O'Meara again quotes the law against spitting in public places. The general order follows:

The special enforcement of the law against spitting on sidewalks and in other public places has been in effect three weeks. More than 500 persons have been prosecuted and great and useful publicity has been given to the work. The whole community has been warned of the law by all means within the power of the police department and it is now time to remove the limitations as to the persons to be first prosecuted, which were suggested in general order No. 435, issued Nov. 15.

Beginning Thursday, Dec. 8, at 8 a. m., the police will be expected to prosecute all persons who are seen by them to violate the law. As heretofore, prosecutions will be by summons rather than by immediate arrest in all cases in which such course may seem reasonable in view of the sex, age, condition or apparent responsibility of the offender. But arrest on the spot is authorized by the law and when the offender can thereby be taken directly to court it is often the most humane way of securing the prosecution.

Up to this time particular attention has been given to sidewalks, but it is now proper to call attention to the fact that the law applies equally to many other places. In order that this may be fully understood, chapter 165, acts of 1906, as amended by chapter 410, Acts of 1907, and chapter 150, Acts of 1908, and now in force, is published.

Ordered to Stop Using Private Sewers

Rahway, N. J.—Another move on the part of the State Board of Health to force the city of Rahway to erect a sewage disposal plant, filtration bed or make extensive changes in its present system developed when notices were served by an official representing the State Board on all property owners along Main street who have private sewers emptying into the river along that thoroughfare. The notices are to the effect that all those whose drains are polluting the Rahway River must cease doing so or appear before the State Board at Trenton and show cause why such nuisance be not abated. It is generally considered that this new move on the part of the State Board is in line with their previous edict to the city to cease emptying its sewage into the river after Oct. 1, 1911, which is also considered an unfair measure by the citizens, as the Rahway sewage, like that of the larger cities in this section, is deposited at tide water, and as there is no place below Rahway on the river it cannot be seen how this manner of disposal is interfering with anyone or in any way dangerous. The present action of the State Board revives the old question, and it is now the principal subject for discussion.

Water and Gas Pipe in Sewer Trench Bursts

Wilkes-Barre, Pa.—A cave-in in a sewer trench caused the breaking of a water main and a gas main. Five men were overcome by the gas and had to be pulled out of the trench. Residents in the vicinity were without both gas and water during one night and part of the following day.

Oysters in Kickemuit Polluted by Sewage

Fall River, Mass.—That Fall River sewage carried by the wind and tide is the source of pollution of the Kickemuit River and the contamination of the oyster beds in that stream, was the opinion of Prof. Earle B. Phelps, of the Massachusetts Institute of Technology, and Prof. Frederic P. Gorham, of Brown University, at a conference in the office of the Commissioners of Shell Fisheries in the State House last week. Brayton A. Round, clerk of the Commission, and Senator Atchison of the Commission, who constitute the pollution committee, will appear before the Massachusetts authorities for the purpose of bringing about a change which will eliminate this source of contamination, if possible. Failing in this, the matter will be placed before the Federal authorities and the assistance which Dr. Wiley has promised this State in this particular movement will be accepted. The meeting of these expert chemists was brought about as a result of a report filed with the commission by Prof. Phelps a week ago upon the condition found to exist in the Kickemuit River. In a series of five examinations of oysters taken from the beds in that river by Dr. Phelps four of them showed the bivalves to be above the Government standard, while the other showed the specimens to be far below the standard of purity. Prof. Gorham had previously made an examination of the beds and found them in such a state as to condemn them.

Cause of Errors in Grade of Lateral Sewers

Morristown, N. J.—Morristown's new sewer system is the subject of much conversation these days, many stories of its not working right being circulated. Because of so small a percentage of townspeople having their houses connected the pipes have clogged a little with the solids, but this has been cared for by flushing. When the system is in use by all the houses in town this trouble, says the engineers in charge, will be overcome. Criticisms regarding the pipes not being laid low enough to permit houses on some streets being connected have been met with the announcement by Clyde Potts, the engineer in charge of the system, that he will, free of charge, for six months, superintend the laying of laterals. Much of the trouble is caused, he says, by the carelessness of contractors in laying the laterals at too great a grade. The contractors are in the habit of inserting a screw in the end of an ordinary spirit level. The end of the screw, so the idea is, protrudes one-half inch beyond the face of the level. This permits each pipe when laid to have a fall of one-half inch. But investigation has revealed that the contractors have sometimes had the screw extend three-quarters or an inch from the level, thus causing trouble when the line of pipe is 100 or more feet in length, and causing it to be too high when the house is reached.

Explains Plans of New Bedford Intercepting Sewer

New Bedford, Mass.—The State Board of Health gave a hearing in Boston on the plans of the city of New Bedford for collecting the sewage which is now discharged into the Acushnet River and Clark's Cove at numerous points, in a main intercepting sewer through which it will be conveyed to a sand catcher and screen chamber to be located on the westerly side of Clark's Point near its southerly end, and thence through a cast-iron out-fall pipe discharging into Buzzard's Bay at a point about 3300 feet southeast of the extreme southerly end of Clark's Point. City Engineer William F. Williams appeared before the board and explained the plan adopted by the city. The plan is to lay a cast-iron pipe, 60 inches in diameter, and if it is necessary later another of the same size will be laid and it is estimated that the combined capacity of these two pipes will care for the sewage of a city of 300,000 inhabitants, or practically three times the present population of New Bedford. The outlet itself is to be under twenty-eight feet of water at low tide. At the shore end of the out-fall pipe a sand catcher is to be installed, to take care of any heavy foreign matter, and there are to be screen chambers to dissolve the effluent. He believed that this matter will be broken up and dissolved when it reaches the screens, and that nothing offensive to the eye will reach the waters of the bay. The plan is to install a gravity system, with a pumping station for the low level sections of the city.

WATER SUPPLY

Asks Council to Cut Water Tax

Chicago, Ill.—Reductions of 10 per cent in all water bills after Feb. 1, 1911, has been proposed to the City Council by B. J. Mullaney, Commission of Public Works. The figures showing how this can be done without impairing the earning capacity of the Water Bureau were sent to the Council by a communication from Mayor Busse in which he indorsed the proposition. The reduction would lop more than \$500,000 off the annual receipts from the sale of water and correspondingly reduce the cost of living to the aggregate of users in the city.

In his report to the Council the Commissioner of Public Works says that there is a surplus of \$870,000 in the water fund over what it will use this year for its own needs. He figures that this will increase in each subsequent year so that the users of water are entitled to the reduction. At the same time large improvements and increased expenditures are contemplated.

The figures by which it is estimated that even with the proposed reduction more than \$17,000,000 will be available for improvements in the next seven years, 1911 to 1917, are:

Balance at close of 1910.....	\$870,000.00
Revenue 1911 to 1917 inclusive.....	49,264,986.00
Total estimated revenue.....	\$50,134,986.00
Expense of operation, etc.....	26,834,589.20
Profit available for betterments, etc.....	\$23,300,396.80
Redemption of certificates, etc.....	1,000,000.00
Balance.....	\$22,300,396.80
Retirement of bonds and certificates.....	1,000,000.00
Balance.....	\$21,300,396.80
Proposed 10 per cent reduction.....	4,300,000.00
Net amount available for additions.....	\$17,000,396.80

Entire revision of the rates so as to make them equitable to all consumers is also urged in the communication. The Aldermen referred it to the Finance Committee.

Water Works Pumping Station Burns

Fort Worth, Tex.—Fire starting in the roof at 3 o'clock a. m., Dec. 8, completely destroyed the Powell pumping station of the city waterworks system. The loss to machinery and building will be in the neighborhood of \$50,000. Insurance to the amount of \$28,000 was carried—\$8,000 on the building and the remainder on the machinery. The Powell plant was located four miles southwest of the city, on the Benbrook road, and pumped from ten artesian wells. The water from these wells was sent by gravity to the Mead tunnel leading to the Holley station, where it was pumped into the artesian mains. The ten wells produced approximately 1,000,000 gallons of water daily. The City Commissioner has decided to again tap the big well on Tucker Hill that has been idle a number of years. An ample supply of river water can also be obtained from West Fork.

Water Supplies Low Throughout Connecticut

New Haven, Conn.—Water works men throughout Connecticut are anxious over the condition of their reservoirs. The rain fall for the year is about six inches less than normal, and the ground is now frozen without this deficiency having been made up. This means that rain now falling will run off quickly instead of being retained in the ground. The New Haven Water Company, whose reservoirs are low, has purchased the Mt. Carmel Water Company, and will combine that supply with its system, supplying the Mt. Carmel district by a main from its present reservoirs.

Twenty-five Million Dollar Water Tunnel Bids Held Up

New York, N. Y.—The Board of Water Supply has withdrawn its advertisements for bids for the high-pressure tunnel that has been planned to carry Catskill water far below the streets of the city. The immediate cause of the withdrawal was the failure of Corporation Counsel Watson to approve the forms of contract. These, it is alleged, are so drawn as to permit the possibility of favoritism and restrict the number of bidders. The president of the Board, John A. Bensel, has recently been elected State Engineer and Surveyor. It is believed that a general reorganization of the Board or its possible absorption under the Department of Water Supply, Gas and Electricity is foreshadowed.

Experts Differ on Quality of Water

Des Moines, Ia.—In a report filed with the Council relative to the typhoid epidemic now raging in the city Dr. Sayler, City Physician, states that the distribution of the cases points to the city water supply as the cause of the prevalence of the sickness. Dr. Sayler also reports that the fever is now well under control and will probably not develop anew. Several exhibits of analyses made of the water supply were also presented to the Council. They show that the water is in good condition. Speaking in presenting his report, Dr. Sayler asserted that even the most minute examination might fail to reveal traces of the typhoid bacilli even if they existed in the water.

That the city water is not the cause of the typhoid fever epidemic is the statement made by Prof. E. G. Smith, of Beloit University, who is in the city investigating the disease. In a letter addressed to Manager Chas. S. Denman, of the City Water Company, Professor Smith says:

I have been in Des Moines for the last two days investigating the cause of the recent typhoid outbreak in the city. I have not completed the investigation, and it will be continued by me, and under my supervision, and the results of the investigation will be freely given to the public.

I wish now to report that I have gone far enough to have conclusively demonstrated in my own opinion that the outbreak was not caused by turning the water from the new extension of the galleries into the city supply, as has been frequently suggested.

The date when the water in this gallery was turned on is fixed certainly, and was 4 o'clock p. m. on November 15. The water from this gallery could not possibly have gotten into general domestic use before some time on November 16. The outbreak commenced on November 15, the day before this water could have been used, and between November 15 and November 20, before any typhoid could have been attributed to the use of this water, thirty-three cases were reported, and were so well defined that the patients later were put to bed.

This latter statement is disputed by Commissioner MacVicar, who says the first appearance of typhoid was on the 22nd.

Third Artesian Well Makes Good Showing

Mishawaka, Ind.—An official test of the third artesian well was recently made in the presence of Water Works Superintendent C. F. Crabill, City Engineer James Haverly, Mayor John A. Herzog and members of the Council Water Works Committee. Mishawaka now has three wells, all within 50 feet of each other. The first one is down 169 feet, the second 206½ feet, and the third, the one tested, is down 217 feet. In all the water rises to a normal level of six feet from the surface and the first wells are not materially affected by the pumping from the third well, showing undoubtedly that the supply is ample. After several hours' pumping the head decreases to about 25 feet from the surface and remains there. When the pump is stopped the water at once rises to the normal level. The capacity of the third well was 480,000 gallons in 24 hours. The Harmon Water Supply Company, Tiffin, O., who drilled the wells, are very optimistic and think that artesian wells will supply all the water the city needs for years to come.

Northfield Melts Snow for Water

Northfield, N. J.—Snow, complained of in most places, is regarded as a blessing at drought-stricken Northfield. The residents are filling tubs, boilers and all receptacles with snow, melting it and using the water for household use. Since the water famine of last summer the people of the town can draw water from but one well in town. The town blames East Orange for the drought. The city water works, it is claimed, has dried up the wells. Officials of the city declared a few months ago that the famine was partly due to the extremely dry season. But conditions have not as yet improved.

Revere to Continue Water Company Fight

Revere, Mass.—The sum of \$3,000 has been appropriated to continue the fight against the Revere Water Company before the Supreme Court. The Supreme Court has decreed that the case may be heard before a master. The action is being brought by the town to recover a part of the \$350,000 paid to the Revere Water Company for its plant in 1904. Although the citizens at that time voted unanimously to pay \$350,000 for the plant, it is now claimed that the committee and the citizens were misled by the engineer's reports and that the plant was not worth nearly the amount paid for it.

Found Electricity in Water Pipes

New Britain, Conn.—The men employed by the Water Department to make the connections on Corbin avenue have discovered that electricity as well as water flows through the pipes in this section of the city. A workman was at work calking a connection a few days ago and as he struck the chisel with his hammer he was astonished to see brilliant sparks fly in all directions. Superintendent Towers of the Water Department ordered the men to quit work temporarily and he reported the trouble to Local Manager Risley of the Connecticut Company. Mr. Risley stated that the electricity in the pipes was easily explained and that steps would be taken to do away with the trouble. The Connecticut Company has not completed its system of bonding the rails since the improvements were installed in the center of the city. When the tracks which cross the railroad on Main street have been bonded and connected with the return feed wire from Hart's station, Mr. Risley states that there will be no trouble from electricity in the water pipes on Corbin avenue.

City Wins Fight Against Water Co.

Grand Rapids, Mich.—The fight of the city of Grand Rapids against the Grand Rapids Hydraulic Company, which controls the water supply of the city, ended last week with victory in the decision of the Supreme Court of the United States, affirming the proceedings putting to an end the monopoly held by the company. An act of the Michigan Legislature to this effect, passed in 1905, was upheld. The plaintiffs in the case, most of whom are bondholders of the Hydraulic Company, contended that the act of repeal was unconstitutional and that the city could not oust them without at least taking over their plant at a fair valuation. The city will now take steps to oust the company from using the streets, as their system is a dangerous obstacle to the extension of the city's water system.

Water Resource Commission for Minnesota

St. Paul, Minn.—That the regulation, control and utilization of the water resources of Minnesota is of greater importance than any other question confronting the people of the State at the present time is the opinion of George A. Ralph, State Drainage Engineer. In a report just filed he submits the draft of a proposed law creating a water resources commission, regulating and controlling the use of the waters of the State. Gauging stations were established on all the principal streams of the State the past two years and observers placed in charge who took daily readings of the stage of water. Measurements were taken with a current meter about once a month. Surveys were made of the St. Louis, Crow Wing, Rum, Root, Cannon, Cloquet, Otter Tail and Red Lake rivers, aggregating nearly 1000 miles. A census of the developed water powers of the State shows the average of developed water power 113,100 horse power; the total estimated available water power without storage, 508,000; with storage, 750,000.

Complain of Lowered Lake Level

St. Paul, Minn.—Anoka County, through Arthur F. Pratt, its attorney, has appealed to Attorney General Simpson for advice, aid and comfort relative to the alleged draining of Centerville lake by the St. Paul Water Department. Mr. Pratt has filed quite a lengthy complaint with the attorney general. Among other things, he says that the lowering of the lake's level is causing wells of farmers residing near by to become dry, and he also fears that unless the Water Department of St. Paul is restrained from further pumping ice will form in the lake this winter so close to the bottom that thousands of fish will die, and that next spring when the lake opens they will be washed upon the shores and become a menace to health.

Water Supply Gives Out

Whitinsville, Mass.—Whitinsville's water supply gave out as a result of the long-continued drought and 5000 water takers are without pure water for drinking and cooking purposes. Water from the "meadow pond" is being pumped into the mains and the users have been notified to boil all water before using. As the town has two 1500-horsepower pumps available for fire purposes, and sufficient water in the meadow from which to draw in case of need, there is no additional fire hazard because of the drying up of the reservoir.

Los Angeles Aqueduct Nearing Completion

Los Angeles, Cal.—The Los Angeles Aqueduct, one of the largest municipal engineering works ever undertaken, which is to bring Owens River water to the city, is now nearing completion after two years of steady toil. Tunnels have been driven through mountain ranges, and miles upon miles of ditch have been opened during night and day, so that now all that remains to be done outside of a small amount of



Courtesy Los Angeles Express.

FILLING WALLS OF LOS ANGELES AQUEDUCT WITH LIQUID CONCRETE
ditch digging and tunnel driving, is the installation of the big siphons. Rumors of bad concrete on the aqueduct have been in circulation, but these have been proven groundless by the Board of Public Works. On the contrary, the concrete in hundreds of places tested along the line is so hard that it resists a steel pick. There was one section along the line where the concrete was frozen just before it set. The engineers ordered several miles of it torn out, thinking that the freezing had ruined it. The huge masses were thrown out at one side of the ditch and are still there. The chunks have now set and they are as hard as boulders. The tearing out of this concrete, which time has shown was unnecessary, gave rise to the rumors of miles and miles of bad concrete.

Contractor Gives Satisfactory Guarantees of Progress

Waterbury, Conn.—At a meeting of the Board of Public Works an inquiry was made into the ability of Ryan, Unmack & Company, contractors for the reservoir, to complete their work on time. The business before the Board was to secure from the members of the firm of Ryan, Unmack & Company and their backers, definite statements as to how much new equipment they were going to secure, when it would be secured and installed and whether they would be able with it to complete their big contract on schedule time. Members of the firm made satisfactory explanation as to their intentions in the matter, telling of options which they had upon a new steam shovel and its necessary equipment which was to be installed during the winter, agreeing to carry on the work of quarrying out rock during the winter months and also to start the manufacture of concrete blocks, a point insisted on by Engineer R. A. Cairns, as vital. The blocks have to be dried out three months before they can be used, and only about 100 have been made out of the thousands needed.

Pumping Engines Nearly Worn Out

Youngstown, O.—The three 5,000,000-gallon pumps at the water works are said to be about worn out and cannot last more than 18 months at the best. One is a Dean pump that has been in service 20 years, and two are Tod pumps installed 15 years ago. Two pumps are in use all the time, and one held in reserve. They have been overloaded for years, sometimes handling as much as 7,000,000 gallons each. One of the pumps has to handle 6,000,000 gallons every day. Recently the bed plates have been breaking and extensive repairs have been necessary.

STREET LIGHTING AND POWER

Lights to Beautify Streets of Augusta, Ga.

Augusta, Ga.—Both sides of Augusta's first Great White Way will have been completed with the erection of the lighting poles on the west side of Eighth street. Poles have been ordered like the poles on the east side of the street, erected some time ago, and they will be placed at similar intervals, with a four-branch pole at Greene street, as on the east side. The erection of the poles on the west side completes the first Great White Way for Augusta. It is believed that this "Way," however, is the beginning of a number of other attractively lighted streets, and as Augusta now claims the most beautiful streets of any city in the South by day, the streets will soon become listed with those beautiful by night, and Augusta will have the reputation of being a city beautiful at all times and under all occasions.

Sign Chicago Lighting Contract

Chicago, Ill.—Turning over the city's lighting stations to the sanitary district and the signing of the contract by which Chicago will get 10,000 additional street arc lights, making it the best-lighted city in the world, has been effected. It was practically the last official act of R. R. McCormick, president of the Board. President McCormick and William Carroll, City Electrician, went to Mayor Busse's office where the signatures were attached to the papers. The sanitary district has taken formal possession of the eight substations and continue operating them with the same crews. The sanitary district will put in \$1,000,000 worth of improvements and furnish the city current at \$15 a horse power. The Lincoln and West Park systems are supplied at the same rate. The south park makes its own at double the cost. It is expected that it will take at least three years to install the additional lights.

Town Wants Minneapolis Lighting System

Huron, S. D.—A street lighting system equal in all details, efficiency and beauty to that of the city of Minneapolis is that which was recommended to the City Commissioners at their last regular meeting by Earle D. Jackson, of St. Paul, City Consulting Engineer, in his report relative to Huron's street illumination. The City Council awarded the contract to the Huron Light & Power Company on March 10, 1910, for the installation of the magnetite arc system in the resident sections, as recommended by Mr. Jackson, and the chief issue now to be decided is whether cluster lights shall be placed in the business portion.

Six Blocks of New Lights

Nashville, Tenn.—Last week the new lights which have been installed in the uptown district of Nashville were turned on along Broadway from the river to Sixth avenue. There are 44 of these beautiful lights in the six blocks mentioned, 22 on either side of the street, 50 feet apart. The lights on Broadway mark the culmination of the work of the merchants of that street, who for nearly two years past have been getting up the subscriptions to purchase the fixtures. It is due to the efforts of the Broadway boosters, an organization formed during the summer of 1909, that the lights have been made possible.

Test Car Used for Discovering Stray Electric Currents

Rochester, N. Y.—The city which has an interest in the water and gas pipes in the streets, the railway which has its tracks along the same thoroughfares and its trolleys overhead, and the light company whose wires and cables are underground, are alike interested and will together conduct a thorough test for electrolysis in the streets of this city, preparing charts of leaks, which will permit repairs and changes being made to prevent trouble from this cause. A delicately adjusted and sensitive set of instruments installed in a special test car is sent slowly over the tracks of the railway company, while little mechanical pens trace a chart or plot of the conditions that the instruments find existent. These charts are then co-ordinated with the location of streets and alleys and crossings and cable crossings. This done, the trouble is readily located, and once found, there are ways of doing away with the difficulty. The test car will begin its work very soon.

FIRE AND POLICE

Reductions in Rates Pay for Fire Alarm

Beaver Falls, Pa.—According to figures compiled by local insurance men the Gamewell fire alarm system recently installed will save citizens more than its total cost every year. The system cost \$4,200. Reductions in rates in consequence of the installation are estimated at \$1,500 yearly to manufacturers, \$3,000 to business men and \$1,000 to owners of dwellings.

Few Applicants for Firemen's Positions

Columbus, O.—Lack of candidates for city firemen is menacing not only Columbus but other cities of Ohio, and already has become a problem that will have to be solved. W. C. Andrus, secretary of the civil service commission, declares that in a recent trip to Dayton and Cincinnati he found the fire departments facing the same shortage of men as is being faced in Columbus, and found the officials of those cities in a quandary as to means to getting more firemen. The Columbus department is down to its minimum now, and has practically no eligible list to draw from to fill the ranks of the firemen in the event of any emergency.

Automobile Patrol in Fire

Indianapolis, Ind.—An automobile patrol wagon that had been in service four years was burned while it was being repaired. It is supposed to have caught fire from defective wiring. The top and body were practically destroyed. The machine had not been insured, as it was supposed it was unnecessary as men were near it night and day.

Mats for Corner Policemen

Indianapolis, Ind.—Cocoanut mats are being tried out as foot warmers by corner Policemen Keever and Stodard, stationed at Pennsylvania and Washington streets and Market and Pennsylvania streets. A day or two ago Charles Becker passed Keever's corner and remarked that he was going to give the corner man a Christmas present. Keever thought Becker was indulging in a pleasant and dismissed the matter from his mind until Becker suddenly appeared in the stream of traffic and tossed the thick mat to the pavement. "Try it—see if it don't keep 'em dry and warm." The men say the cocoanut mats are going to be the "real thing" in damp weather after rain or snow when the pavements are wet and slushy. They keep the feet warm, Keever and Stodard say. They also excite considerable curiosity on the part of passersby. Becker told one of the corner men that he intended to get mats for all the corner men if the two proved satisfactory.

Increased Pay for New Patrolmen

Niagara Falls, N. Y.—Mayor Anthony C. Douglass, as Chairman of the Board of Police Commissioners, has recommended to the Common Council that the pay of first-year policemen be increased from \$50 to \$65 a month. The Mayor explained that each officer appointed to the force is required to pay for the different uniforms which he is required to have under the rules of the department, which leaves him very little money out of his year's salary.

New Fire Alarm System for Florida Town

Live Oak, Fla.—The new fire alarm system has been installed and is complete in every way, including the electric alarm. The city is divided into five wards, and each ward has been divided into four fire districts, which gives 20 fire districts. Fire Chief E. J. Harris has issued the following instructions to citizens:

To turn in an alarm, call Central and give your ward and district number. For instance, if you are in Ward 1, District 2, call Central and say, "Fire! Ward 1, District 2." Each telephone will be furnished with a card showing which ward and district you are in.

To locate a fire from the alarm, the water works whistle will first sound the ward and then the district. For instance, if the fire is in Ward 3 and District 2, the whistle will sound three blows for the ward and two blows for the district, this to be repeated several times. To keep the whistle clear, each day at eleven o'clock the fire whistle will sound one blow.

The Fire Department request that you all take an interest in us and help us make it the best Fire Department in the State. We are equipped for quick service and ask that alarms be sent in promptly.

Don't wait to see if you can put the fire out—let us do it.

New Fire Auto Is Being Equipped

Janesville, Wis.—Those who have examined the four-cylinder, 40-horsepower, Model 16 Buick car which arrived last week and is to be used in the service of the Fire Department, express themselves as well satisfied with the city's acquisition. The machine weighs approximately 3000 pounds and looks strong enough to stand the racket. At present the motor car is geared to 65 miles an hour, but this will be reduced to 30 miles in order to insure plenty of power to combat with snow and mud and steep inclines. All four wheels will carry mud-chains when the going is heavy. The Common Council will have to order a special chemical tank to be placed on the rear platform. One with a capacity of 25 gallons will probably be secured. Incandescent electric lamps will be substituted and some special horn or gong will be devised by Chief Klein and his assistants. The car is of the same type but larger than the one used by the Rockford fire chief. The Madison Common Council, it is said, will put a similar car in commission for its fire department. Chief Klein denies that he has ever agitated dispensing with the fire and police patrol. If one chemical apparatus is good, two will be all the more efficient. The police patrol tank carries 30 gallons.

Efficiency of Chief's Auto Demonstrated

Montgomery, Ala.—Chief Browder answered three fire calls with his fire-equipped automobile, which came in between 10:31 and 10:50 a. m., one day last week, and each of the three was widely separated from the others. The first call came from the Mastin home, near Cloverdale, at 10:31, and in a few minutes after the automobile reached it a call from 407 Martha street was turned in, and the machine was headed for that place. At 10:50 an alarm came from 808 North Decatur street, to which place Chief Browder lost no time in getting. It was mostly due to the excellent work of the fire-equipped automobile that all three fires were extinguished before doing any great damage.

Auto Engine Again Out of Commission

Paterson, N. J.—No. 10 engine, the new auto fire-fighting apparatus, was for a second time out of commission as the result of her run last week to the fire at the Brand's mill, Marshall street. When the alarm was turned in the machine started out to answer the box call, but when she got as far as Leslie street, on Madison avenue, she stopped because of trouble with the propelling apparatus. As a result she did not reach the scene of the fire. On being taken back to the house and examined it was found that the babbitt metal in which the shafting of the driving gear runs was partially melted. A report has been made that the oil cups for that bearing were full of oil on the return of the machine to the house. Department heads are at a loss to understand how the bearings could have become so hot with plenty of oil. As bearings for the machine could not be obtained at once the machine was out of commission several days.

New Ordinance for Oil Tanks

Sacramento, Cal.—The City Board of Trustees has repealed the ordinance which regulates the storage of fuel oil in Sacramento and the Judiciary Committee presented a proposed law allowing the storage of tanks under the sidewalks. The proposed law is one approved by Fire Underwriters. It does not allow the storage of more than a five-gallon can of benzine or gasoline above ground. Tanks of fuel oil stored under the sidewalk must contain not more than 300 gallons and there must be no more than three tanks on a premises. They will be placed according to the directions of the Fire Chief. Fine for violation of the ordinance is from \$10 to \$500.

Simple Flashlight System

Sharon, Pa.—An innovation in police signals has been installed in South Sharon which promises to be very effective. A large red light has been placed on the top of a pole 75 feet above the new municipal building, and at night can be seen from nearly every part of the town. Officers on the night beats will thus be enabled at all times to keep in touch with headquarters, as when news comes to the party on duty at the station that an officer is wanted the light will be flashed on, notifying the officers that they must at once get to a 'phone and communicate with headquarters.

New System of Night Patrol—"Greyhound" Beat

San Jose, Cal.—Chief of Police Kidder's new system of patrolling the town was initiated last week. In carrying out this plan each man circles the city each night. No policeman goes over the same beat twice. Chief Kidder says he believes the present system, or "greyhound" beat, will be a great improvement over the old routine of keeping one man on the same beat all night. He said the outside districts would be covered twice as often as before and the center of town at least three times oftener than has been the custom. The policemen seem interested in the new régime, as it will relieve the monotony which has heretofore existed. The three inside men shift each hour and the outside patrolmen are on the move all the time. The Chief said one admirable part of the police work that can be made of advantage by the installation of the new system is the fact that if a policeman notices a man whose looks are suspicious, and yet he has no reason for arresting him, the man, if a crook, will move from that beat, not expecting to meet the same policeman again. He will probably move along several blocks, then stop again and watch for a chance. The same bluecoat keeps on his beat, sees this man still "hanging around" and arrests him.

Wins Police Trophy Three Years in Succession

Pittsburg, Pa.—There will be no more annual drill contests for the police trophy cup. For the third time in so many years the First Police District has won the trophy on Forbes Field, and it is now their permanent possession.

Fire Loss Heavy; Building Law for Fire Traps

Lexington, Ky.—Approximately \$125,000 will be Lexington's fire loss for the year of 1910. This is Chief Jesse's report up to date, and will represent the loss for 1910 unless other fires occur between now and January 1. The main losses were occasioned by four big fires: Car barn fire, damage, \$37,200; Redrying Plant Central Tobacco Warehouse Company, \$12,300; Stoll Warehouse, \$14,200, and Logan & Haggins Hemp Factory, \$16,300. The report will recommend that a building law be adopted and enforced. This law Chief Jesse says is absolutely necessary to prevent the building of houses in such poor style, causing them to be veritable fire traps.

Two Fire Alarms; Two Accidents

Harrisburg, Pa.—Two alarms were responded to by the Fire Department one day and as the result two pieces of fire apparatus are out of commission. While turning a corner the engine of the Friendship Company swung aside on a street car track and dished the right hind wheel, breaking several spokes. This accident was due to the slippery condition of the streets. Washington chemical wagon also skidded and the wagon was thrown against the curb, the back axle was broken, as was the brake rigging.

Ladies Present Saratoga with Fire Truck

Saratoga Springs, N. Y.—The new combination hose and chemical fire truck made possible through a gift of \$2,000 to the village by the Misses Swan has been shipped from the factory and is expected soon. The new truck cost \$5,000, the difference being made up by the village. The truck will carry 1,000 feet of hose and has a 40-gallon chemical tank with 200 feet of hose.

Practical Auto Apparatus Test

Tacoma, Wash.—One of the first real tests of the efficiency and speed of the new auto fire-fighting apparatus recently installed in this city came when a fire broke out early in the afternoon at the residence of Alfred Kough, 10 North E street. With great rapidity the flames spread from an upstairs bedroom to other parts of the house. The automobile chemical engine from the station on St. Helens avenue and the larger one from the central station at Ninth and A streets hastened to the scene, and within less than 15 minutes had the fire out. The auto chemicals had streams of water on the blaze before the horse-drawn apparatus had arrived. In all the damage will not amount to over \$1,500 from either flames, smoke or water. Several rooms upstairs are badly damaged by both the flames and water, but only the furniture downstairs was hurt to any great extent.

GOVERNMENT AND FINANCE

Commission Plan Defeated in Bellingham

Bellingham, Wash.—The charter embracing the commission form of government was defeated last week by a majority of 350 votes. The total vote of the city was 2500, which was heavier than expected.

Revenue for Occupation of Street

Boston, Mass.—Complaint is uttered by Mayor Fitzgerald over the long delay of the City Council in acting on the ordinance now before that body which establishes terms upon which certain permits or licenses are to be issued by the street department. The Mayor feels that by the passing of this ordinance the city will be able to collect a revenue of at least \$10,000 a year. But he reckons on fees from projecting signs, for which the statute does not provide in so many words. Permits for coal-holes, bay windows and marquees are other possible sources of revenue.

Chelsea Commissions to Supervise Separate Departments

Chelsea, Mass.—The Board of Control of Chelsea has voted to divide the city departments into four groups, each Commissioner to hereafter have supervision of one of these groups. Commissioner Ratchesky is not included in this plan. The departments are divided: Chairman McClintock, engineering, legal, sewers, streets, water, parks; Commissioner Wilmarth, buildings, health, electricity and sealer of weights and measures; Commissioner Briggs, auditor, treasurer, fire, street lighting, assessors, and sinking fund; Commissioner Dunham, liquor licenses, overseers of the poor, police department bills and accounts, and the city clerk.

This plan is similar to that in vogue in Haverhill, except that here the salaries paid to the heads of departments still remain the same and their powers are not curtailed in any way. The idea of the Board of Control is to give each Commissioner an opportunity of securing a comprehensive working knowledge of the particular departments over which he has supervision, so that he may become an expert in those offices. This makes it unnecessary for the heads of these departments to hereafter hold conferences with the whole Board of Control, except on matters of special importance. The Board of Control also voted to hold their meetings publicly, beginning Monday, Dec. 12. The Board also adopted another article from the Haverhill charter, relating to appropriations. This provides that hereafter the Board shall not pass an order or vote an appropriation of more than \$2000 unless the same is proposed in writing and remains on file in the office of the City Clerk at least one week before its passage, except an order or vote for the immediate preservation of the public peace or safety, which contains a statement of its urgency, and is made or passed by a four-fifths vote.

Banks Want City Funds

Chicago, Ill.—Fifty-five banks have sent bids to Comptroller Wilson designating the amount of interest they would pay the city on its \$80,000,000 of funds deposited in their care during 1911. With three exceptions all the banks bid exactly the same amount—2 per cent on demand deposits and 2½ per cent on time deposits. Three small banks bid 3 per cent for time deposits.

Civil Service Rules Adopted in Detroit

Detroit, Mich.—Civil service regulations went into effect in Detroit, December 6.

Election on Commission Government

Ottawa, Ill.—A special election to vote upon the proposition "Shall the City of Ottawa Adopt the Commission Form of Municipal Government" was ordered by Judge W. H. Hinebaugh when a petition bearing the signatures of 700 voters of Ottawa was filed in the County Court asking that such an election be called. The petition was filed by J. M. Megaffin, president of the Ottawa Business Men's Association, and L. M. Lucey, who worked for the passage of the bill by the State Legislature.

Votes Commission Government

Terrell, Tex.—In the special election just held in this city the proposition to adopt the commission form of city government carried by a vote of 157 for and 61 against.

Twelve Mayors Fighting Change

Indianapolis, Ind.—Plans for making a fight against the enactment of a law authorizing cities of Indiana to adopt the commission form of government were made last week at a conference of Mayors of Indiana cities at the Denison Hotel. The following were present at the meeting: Mayors Knotts, of Gary; Becker, of Hammond; Hawkins, of Shelbyville; Field, of Bedford; Black, of Rushville; Foster, of Anderson; Heilman, of Evansville; Hastings, of Martinsville; Harris, of Bloomington; Wilson, of Marion; Tuhey, of Muncie, and Edmunds, of Frankfort. The meeting was held in response to letters sent out by Mayor Lawrence Becker, of Hammond. It was the opinion of the Mayors at the meeting that a city could not be run any better by a commission than by a Mayor and his boards, and they decided to fight the proposal when it comes before the Legislature this winter.

Commission Places Kansas City on Cash Basis With Surplus

Kansas City.—The close of 1910 will see Kansas City, Kan., established on a cash-paying basis, with a surplus in every one of its funds except the lighting fund, its floating debt almost wiped out and none of the revenue for 1911 used for the expenses of 1910. That is to be the condition financially at the close of the first nine months of government by commission as announced by Charles W. Green, Commissioner of Finance and Revenue. It is the result, he says, of a strict adherence to the provision of the commission law that requires a municipality to "live within its means." It is pointed out that when the Commissioners took charge last April the funds for 1910 practically had been used in advance and there was an indebtedness against nearly every fund. The area of the city under the new rule was 17 square miles, while the area in 1909 under the Council jurisdiction was 10 square miles. The assessed valuation of the enlarged city made in 1910 on which to collect taxes for 1911 expenses is \$58,800,000, against an assessed valuation of \$71,000,000 made in 1909 for 1910 expenses of the city before the extension of its limits, and the rate of taxation in the larger city for all purposes—State, county, city, parks and schools—is the same under the 1909 levy, \$1.80 on the hundred. "When commission government began the acquisition of new territory had seriously depleted the treasury," Mr. Green said. "There was an indebtedness against every fund. This has been paid, except a small amount in the lighting fund, and the commissions have managed to get along without drawing in advance on anticipated revenues, as was the custom for years under the old Council rule." The lighting fund, Mr. Green said, was handicapped with a \$20,000 deficit when the Commissioners took charge. This was chargeable to the old law, which provided for a tax levy too small to yield a revenue sufficient to provide properly for lighting the city.

Oakland Votes for Progressive Charter

Oakland, Cal.—By a vote of 9023 to 3108 the citizens adopted the new charter, which contains initiative and referendum and recall clauses and provides ample provision for additional legislation to meet the needs of a growing city. The alternative proposition was defeated, 7597 to 4519, being regarded as too ambiguous.

Mayor Vetoes Ordinance

Terre Haute, Ind.—Mayor Gerhardt has vetoed the ordinance taking into the city limits the factory districts which are so closely built up with the city that the boundary lines in some instances run through thickly settled streets. The city would get \$30,000 additional taxes from the property which now receives fire and police protection. The Mayor says the factories have helped to make Terre Haute prosperous, and that they were promised exemption from taxes by the Commercial Club which brought them here. There is a question whether the veto is effective. It is more than 20 days since the ordinance was passed, and the limit for a veto is 10 days, but there is a contention that the City Clerk perhaps did not present the ordinance to the Mayor as soon as commonly believed he did.

Putnam, Conn., Petitions for Commission

Putnam, Conn.—Mayor McDonald has filed a petition with the Secretary of State asking that the charter of the city be so changed as to permit the adoption of a commission form of government.

STREET CLEANING AND REFUSE DISPOSAL

Will Collect Ashes by Day in Winter

Camden, N. J.—Street Commissioner Sayres has decided that during the winter months ashes will be collected during the day instead of at night. The Commissioner says he found considerable suffering among the men and the horses in the cold night work. He says also that people in some sections of the city are complaining of being placed to a great deal of inconvenience in placing the ash boxes along the sidewalks early in the evenings.

Will Haul Away City Waste in Steam or Electric Cars

Detroit, Mich.—The Department of Public Works has been authorized to make arrangements with the street or steam railroads for hauling rubbish and ashes to suitable dumping grounds. Suitable loading stations with sidings will be established.

Street Cleaning Superintendent Breaks Record

Cincinnati, O.—The report of Street-Cleaning Superintendent Maag for the month of November to Service Director Sundmaker shows that during that month his department flushed 8457 squares; swept by machine 1289 squares; hand-broomed 24,024 squares; hauled 19,986 cubic yards of ashes; hauled 11,420 cubic yards of street dirt; hauled 1583 cubic yards of sewer dirt; cleaned and flushed 2199 inlets, 313 basins and 33 main sewers. This is a record-breaking month.

Worcester Garbage Collection and Piggery

Worcester, Mass.—Mayor Frank J. Rice, of New Haven, recently visited the Worcester poor farm, where a piggery is maintained, and the pigs fed on city garbage. He gives the following account of what he saw:

The city has gradually built up its plant, and last year it collected its entire garbage at a profit of \$3,000. We were received at Worcester by the Overseers of the Poor and driven to the Poor Farm, where I saw 2,500 as fine swine as I ever laid my eyes on. There was not a poor one in the lot that I could see. They are kept in long sheds probably 150 feet in length with pens for each shed. There are four or five pigs in each pen. The pens are whitewashed often and are sprayed and cleaned daily, so that there is very little odor from them and they are perfectly sanitary. The garbage is collected daily and fed to them. The city of Worcester has 21 teams engaged in the collection work for the whole city, which has a population of about 146,000 to New Haven's 133,000. There are very few complaints there about the service and the officials are enthusiastic over the scheme for the disposal of garbage.

RAPID TRANSIT

Controversy over Franchise Furnishes Argument for City Ownership

Seattle, Wash.—Yielding to the demands of angry residents, the City Council Committee on Corporations rented one of the largest halls in the city to hear reasons why the franchise of the Seattle, Renton and Southern Electric road should not be taken from its present owners and the line operated by the city. The electric line was ordered by the Superior Court to grant five-cent fares to its patrons who were within the city limits. The company filed a supersedesas bond, appealed to the Supreme Court and continued 10 and 15-cent fares. A riot ensued when the company started ejecting passengers who refused to pay the overcharge.

Tacoma Street Cars Attached for Taxes

Tacoma, Wash.—County Treasurer Meath seized the plant and cars of the Tacoma Railway & Power Company and the Puget Sound Electric Company on Dec. 5 through the restraint proceedings, and tied up the street railway system. He is seeking to collect \$211,000 alleged to be due from the companies for taxes and interest. The company has professed willingness to pay the taxes, but objects to the interest. Not a car was permitted to move during the day.

Rioters Destroy Prepayment Cars

Toronto, Ont.—A riot, remarkable for its spontaneity and fierceness while it lasted, resulted in the injury of 18 men, the complete wrecking of 11 street cars and the shattering of the windows in more than 100 more. For two hours a

mob of several thousand surged back and forth on the principal business streets, demolishing every street car that came within reach and completely tying up traffic. The disorderly scenes followed a mass meeting at Massey Hall. Two weeks before the Toronto street railway installed pay-as-you-enter cars on the principal line and much dissatisfaction developed over the innovation. It was claimed that the cars were not adapted to that kind of service. Protests in writing and by personal appeal became so numerous that Mayor Geary and the Board of Control decided to hold a public mass meeting at which the matter could be discussed and perhaps some solution of the problem suggested by the speakers or representatives of the street railway, who were also invited to attend. The meeting, however, got away from the cooler heads and resolved itself into a series of fiery denunciations of the street car company, and shortly before 11 o'clock it broke up, the audience becoming a mob.

Hearing on Trenton's Poor Trolley Service

Trenton, N. J.—Unsubstantial road beds, flat wheels on trolley cars and imperfect joining of rails are conditions which are largely responsible for much of the poor trolley service in Trenton, according to testimony given yesterday before the State Board of Public Utilities Commissioners in the first part of a hearing on the protest of the city of Trenton against ratification of the lease of the Trenton Street Railway Company by the Inter-State Railways Company to the Trenton and Mercer County Traction Corporation.

MISCELLANEOUS

Old Atlanta City Hall Sold

Atlanta, Ga.—Atlanta City Hall has been sold at public outcry to Reuben R. Arnold and Harvey Hill, well-known Atlanta lawyers, for \$67,200. There is a mortgage which will cut this down to \$37,500, and of that sum \$20,000 has already been spent on the old postoffice building as a first payment. Thus the city realized about \$15,000 net from the transaction.

Chicago Plan Praised

Chicago, Ill.—Edward B. Butler, Commissioner of the Commercial Club of Chicago, who has returned from England, where he went in charge of the Chicago exhibit to the recent town planning congress at London, says that the Chicago city plans were acknowledged to be the best shown. D. H. Burnham, Chicago, author of the plans, accompanied Mr. Butler. The Chicago exhibit was given a place in the largest and most important gallery. Only three large cities presented complete plans, Chicago, Berlin and Dusseldorf. The rest of the exhibition consisted of plans for smaller cities, towns and villages, many of them known as "garden cities."

Municipal Skating Rink and Coasting Ground

Dubuque, Ia.—The City Council has voted to establish a free municipal skating rink and coasting ground. The rink will be located in the harbor, which is within five minutes' walk of the business center of the city. The ice will be kept in condition, shaved, flooded and free from snow and the crowds will be under supervision. Light will be maintained and there will be shanties where skaters may go to adjust their skates and get warm. A special Council committee acting with the Chief of Police will have charge of the coasting ground. Suitable hills will be selected where coasters may enjoy themselves without danger and always with proper police supervision.

Philadelphia Bridges Valued at \$21,000,000

Philadelphia, Pa.—An appraisement of bridges owned by the city, made for Comptroller Walton by Thomas T. Haines, Commissioner of Sewers and Bridges, fixes the value of 282 of these municipal structures at \$21,307,240. The report includes railroad bridges, carrying streets under or over railroads, which were constructed jointly by the city and the railroads. The city's equity in these is placed at \$4,281,004. Spring Garden bridge tops the list at \$2,500,000; the Girard avenue bridge is next at \$1,525,000 and South street bridge follows at \$1,200,000.

Baths and Playgrounds for Memphis Poor

Memphis, Tenn.—If the plans of Mayor E. H. Crump do not miscarry, the poor of Memphis are to be cared for systematically under municipal supervision. An ordinance, tentatively framed for enactment by the City Commission, provides for the creation of a municipal Board of Charities, a similar board to have supervision of a system of public playgrounds and the appropriation of a suitable sum to permit of the erection of a free bathhouse. It is also planned to form a board of city officials to work in conjunction with the local visiting nurses' association.

Milwaukee's Municipal Undertakings

Milwaukee, Wis.—Complete home rule for Milwaukee under the city Socialistic administration with provision for the establishment of a list of municipal undertakings without parallel in the history of any American community is being undertaken here. Under instructions by the City Council, the Corporation Attorney is drawing up bills to be submitted to the Legislature by which Milwaukee, after a referendum of its citizens will own outright all its civic utilities and which will provide for the establishment of many civil adjuncts to the local government. Among these will be municipal slaughter houses, four municipal hospitals, one a maternity home; free medical clinics; free lodging house for the poor; the employing of city plumbers to do private plumbing and sewer work and the appointment of a municipal forester.

Well Equipped Chemical Laboratory for New York

New York, N. Y.—At the recent convention of the American Institute of Chemical Engineers John Purroy Mitchel, who welcomed the members of the institute to the city, announced that the city had decided to establish and maintain a fully equipped chemical laboratory for the examination of all chemicals purchased by the city. He said that this laboratory would be governed by a board of directors, who would be men of high standing in their profession. Manufacturing chemists have been urging the city for some time to establish such a laboratory. They say that the present laboratories of the city are not equipped to do the work satisfactorily, and that as a result the city often pays dearly for poor material. With such a laboratory as has been suggested manufacturers and chemical engineers say that such a thing as graft or favoritism in the granting of contracts will be impossible.

Per Capita Cost of Playgrounds in Providence

Providence, R. I.—In a report of the Committee on Summer Playgrounds it was stated that it cost about 4 cents a day per child for the maintaining of the playgrounds for the season of 1910. The report shows that the average daily attendance at the playgrounds was 3,313 and the total for the season 129,199. The total average cost per capita for the season was \$1.72.

Cleveland Park Rules Models for Toledo

Toledo, O.—The varied uses to which Cleveland parks are put and the various sports which are common in them have necessitated a revision of the Cleveland park rules, and this is now being done in the framing of a new park ordinance. The use of Toledo parks by the people is increasing more and more every year, and it will not be long until some rules will be necessary for them in addition to those at present made by the Park Department. Considerable attention in the new rules will be given to the regulation of automobiles and to the use of motor boats. In the Cleveland ordinance such up-to-the-minute matters as the operation of aeroplanes will be regulated. Operators must exercise them before 7 o'clock in the morning, and then only on certain named clear spaces. Regulations for sports and games of every description will be included. In baseball the umpire's word will be law, and noisy and protracted arguments will not be permitted. If the park police have to stop games more than twice the teams are to be barred from the parks the rest of the season. There will be no betting allowed in the parks and the charging of admission will not be allowed. The use of the parks for outdoor sleeping during hot summer nights will be permitted, but tents are to be prohibited.

LEGAL NEWS**A Summary and Notes of Recent Decisions—Rulings of Interest to Municipalities****Water and Sewerage Systems—Taxation**

Penrose v. Ventnor City.—A city charter authorized the Council to pass ordinances to lay drains or construct sewers, to provide water for extinguishing fires, to supply the city and its inhabitants with water, to regulate the running of water mains through the streets of the city, and to direct their extension throughout the entire city, and empowered the Council to raise by tax such sum as they might deem expedient for supplying the city with water for the extinguishment of fires and for domestic and other lawful purposes, for purchasing necessary real estate and providing for a sewerage plant, for the contingent expenses of the city and all other objects and purposes authorized by law. Held, that the Council had the power to raise money by tax for the maintenance and operation of the water system and the sewerage.—Supreme Court of New Jersey, 77 A. R., 1061.

Inspection Trip—Validity of Resolution Providing Funds

Loudenslager v. Atlantic City.—A resolution was passed by the City Council of Atlantic City to pay the expenses of that body together with the Mayor, City Engineer, and City Solicitor in visiting Pensacola and New Orleans to inspect drainage systems in operation in those cities, as a preliminary to the installation of one in Atlantic City; "the expenses * * * to be paid out of the funds now in the treasury belonging to the drainage canal and lateral drainage system." There was no appropriation for the purpose; the only balance in the treasury belonging to the drainage system was from the proceeds of bonds issued under ordinance "for the purpose of providing moneys for the payment of contracts now made or hereafter to be made for the construction and installation * * * of a drainage canal," etc. Held, that the resolution was beyond the purpose specified in the ordinance and was invalid.—Supreme Court of New Jersey, 77 A. R., 1060.

Permit to Excavate in Street—Conditions

Ex parte Wilcox.—An ordinance regulating excavations in the streets of a city by individuals or corporations which provides that the one depositing money as indemnity for damages shall be subject to a penalty by which the city arbitrarily retains a part thereof to the credit of the street fund, and which provides that the one filing a bond shall avoid the penalty, and is only subjected to the obligation of replacing the street in as good condition as before, is invalid, because the regulations are not uniform in their application.—Court of Appeal, California, 111 P. R., 374.

Trespass on Land—Highway

Paul v. City of El Paso et al.—To enjoin one from trespassing upon land, the right of possession of complainant must be superior to that of him against whom the relief is sought. That one was in actual possession of land would at best be only *prima facie* evidence of his title or right of possession necessary to support his suit to enjoin another from trespassing thereon, which *prima facie* evidence would be overcome by his adversary showing title in itself.—Court of Civil Appeals of Texas, 131 S. W. R., 438.

Public Officers—Janitor

Hart v. Mayor and Common Council of City of Newark et al.—The "act relative to the appointment of public officers in cities," being confined by its title to public officers, is ineffectual as to the other classes of public servants mentioned in its text. The "office of janitor" of the city hall of Newark is a municipal employe, and not the holder of a public office.—Supreme Court of New Jersey, 77 A. R., 1086.

Damage Claims—Discretion of Court

Whelan v. City of Plattsburgh.—The refusal of the trial court to permit the jury to view the premises involved in the litigation is not reversible error, in absence of an abuse of discretion.—Supreme Court of Nebraska, 128 N. W. R.

Bitulithic Pavement Patents in New York City

Warren Brothers Company vs. City of New York and Uvalde Asphalt Paving Company.—In July, 1910, a contract was made with the Uvalde Company to lay a pavement in the Borough of Richmond. Suit was commenced and a motion for preliminary injunction was made, but before the motion was argued an agreement was made between the defendants by which the contract was cancelled. The suit was thereafter discontinued. The only inference, the court said, which can be drawn from this action of the defendants is that they were convinced that the specifications of the contract, if carried out, would result in an infringement of the Warren patent. Within a few weeks after the first suit was settled by the cancellation of the contract a new agreement with specifications changed in certain respects was entered into and this suit was commenced to restrain the defendant from proceeding under the new specifications. The specifications in question provide that the trap rock used shall be very hard, and "it shall be the run of the crusher passing through a screen of 1-inch mesh, the sand shall be hard grained, clean and sharp and shall all pass through a 10-mesh screen."

The claims in question are Nos. 5, 6 and 11 of patent No. 727,505, granted to Frederick J. Warren May 5, 1903, for a new and useful improvement in pavement. Referring to cases Warren vs. City of Owosso, 166 Fed. Rep. 306, and Warren Brothers vs. City of Montgomery, 172 Fed. Rep. 414, the court says that the orderly administration of justice requires that the Circuit Courts should follow the decisions of the Circuit Courts of Appeals of other circuits than their own rendered upon facts substantially identical. Of course, in such circumstances the defendant in patent causes may introduce new evidence of anticipation and may show that the facts upon which infringements are based are essentially different from those in the adjudicated case. The court therefore assumes the validity of the patent and that it was not anticipated by any of the alleged prior uses proved in the Owosso case. This leaves only to be considered the Washington, Chicago and Cincinnati prior uses and the question of infringement. The Court says that it has examined the affidavits and specimens taken by both sides from the Washington pavements and is confident that the testimony does not establish anticipation beyond a reasonable doubt. Some of the specimens produced by the defendants have a general resemblance to the patented composition. Others taken by the complainant from the same locality have no resemblance to the particular features upon which patentability rests. The fact that the samples furnished differ so materially in structure and appearance seems to indicate that the influence of heat and cold and the use of the streets for heavy traffic during long periods of time have worked changes in these pavements so that the present structure is not what it was when originally laid.

The claims in issue are for a product, not a process. The claims must be read in the light of the description, but it cannot be doubted that any one using a Warren pavement will infringe, no matter how the pavement is produced. For instance, the specification says it is desirable to have the mineral aggregate rich in particles of the size passing the 200, 100 and 80-mesh sieve. But if the mineral particles are of the indicated size it is immaterial whether they have passed through a sieve or not. The principal question is whether stone treated as described in the specifications will produce the Warren structure. That is, whether the patented pavement can be produced by the ordinary crusher run. The defendants should show the court the pavement which they propose to lay. The complainant has produced exhibits in which the crusher run was used which seemed to conform to the structure of the patent. The conclusion is that the motion should be granted on a day to be named in the order unless in the meantime the defendants produced a sample of the proposed pavement with proof briefly stating how it was constructed. The most satisfactory method of securing this proof would be to permit a small section of the pavement to be laid with a representative of the complainant present at the time.—United States Circuit Court, Southern District of New York.

Unauthorized Sewer Contract—Liability

Aspinwall-Delafield Co. v. Borough of Aspinwall.—A void contract is one which offends against public law or policy, or is without the scope of proper authority, and a contract of a municipal corporation authorized by an irregular resolution is not void, but simply voidable. A municipal corporation may ratify the unauthorized acts and contracts of its agents or officers which are within the scope of corporate power. While a court of equity cannot intervene to give a void contract or any part of it validity, it may give such relief with respect to contracts ultra vires, but voidable because of some irregularity appearing. As an incident of the annexation to a borough of a tract of building lots including a private sewerage system, the borough contracted in writing with the owner of the lots that the sewer should pass to the borough, subject to the exemption of certain of the lots from sewerage connecting charges. Held, that after the decree of annexation and acceptance of the sewer, the borough could not exact a charge for connecting the sewer with the exempted lots on the ground that the resolution authorizing the agreement had not received the approval of the burgess necessary to its validity; it being legislative in character. The rights of the former landowner as against the threatened action of the borough did not depend upon the agreement, but obtained because of such owner's exclusive ownership of the sewer before the annexation, and because such right remained in the owner after the annexation, since, independent of the contract, the borough had no right in the sewer.—Supreme Court of Pennsylvania, 77 A. R., 1098.

Public Improvement—Withdrawal of Names

Wilson et al v. Borough of Collingswood.—Where, by law, the governing body of a municipality is empowered to take certain action relating to a proposed public improvement unless on or before a prescribed date a remonstrance by owners of a specified amount of real estate affected by the improvement is filed, owners who have signed such remonstrance may by proper action withdraw their signatures at any time up to date so prescribed, and the jurisdiction of the Council will not be ousted if the withdrawals are sufficient to reduce the proportion of remonstrants below the amount necessary to make the remonstrance effective. The plan for a water-works and water-supply plant as advertised in this case under section 90 of the borough act, held not sufficiently definite to comply with the intent of the statute.—Supreme Court of New Jersey, 77 A. R., 1033.

Bonds—Statutes

State ex rel Taggart, County Atty., v. Kansas City et al.—An act which limits the operation of an earlier one is not repealed by implication by a reenactment of the original statute, incidental to its amendment in some other respect, but continues in force as a limitation upon the amended statute. Where an act authorizes a city to issue bonds for waterworks, and provides that their issuance shall not be affected by an earlier statute forbidding the creation of a bonded debt in excess of a stated percentage of the property subject to taxation, a subsequent re-enactment of such earlier statute incidental to an amendment merely changing the percentage does not by implication repeal the provision exempting waterworks bonds from the limitation.—Supreme Court of Kansas, 111 P. R., 493.

Funds—Transfers—Council Power

Weik v. City of Wausau et al.—Under St. 1898, empowering the councils of third-class cities to collect taxes and apportion the same into such funds as may be provided by ordinance, the council cannot lawfully transfer moneys from a fund which had been levied for a specific purpose to the general fund or any other fund, though with intent to repay from the next tax revenues.—Supreme Court of Wisconsin, 128 N. W. R., 429.

Commission Government—Park Commissioners

Kansas City et al v. Sullivan et al.—On the adoption of the commission form of government by the City of Kansas City, the powers and duties of the Board of Park Commissioners were transferred to the Mayor and City Commissioners by virtue of the provisions of the Laws of 1909.—Supreme Court of Kansas, 111 P. R., 482.

NEWS OF THE SOCIETIES

Oklahoma Municipal League.—A motto, "He who makes the city makes the world," has been adopted by the newly organized League. Mayor A. F. McGarr, of Muskogee, President of the league, has sent out letters calling attention to the purpose of the organization and of the first called meeting since the league was formed, at Oklahoma City, on Jan. 17. The opening paragraph reads:

Cities like men cannot live unto themselves alone. They need the help, sympathy and experience of others, and they owe others help, sympathy and the benefits of their experience. It therefore behoves the men of Oklahoma to get together.

Forty-four State Senators, 112 Representatives, the city officials of practically 300 cities, towns and villages, and the editors of 525 newspapers in Oklahoma will each receive a letter. The president is seeking their help and influence in making the league a perpetually successful organization. Men prominently versed in municipal affairs are being communicated with by President McGarr, who is endeavoring to secure their presence at the coming meeting. Among them are: John McVicar, City Commissioner and former Mayor of Des Moines, Ia.; Frank G. Pierce, Secretary-Treasurer of the League of Iowa Municipalities, of Marshalltown, Ia., and Henry C. McCune, ex-Mayor Henry M. Beardsley and Roger M. Baldwin, all of Kansas City.

At the coming meeting President McGarr will endeavor to secure sufficient legislation that will result in each municipality in the State appropriating funds to defray the expenses of at least two delegates at each gathering and also a membership appropriation of a specified amount. This will insure the success of the organization and the accomplishment of much good work for municipalities throughout the State.

Police Chiefs' Association of California.—With a view to establishing a State Bureau of Identification of Criminals, which will probably result in the eventual establishment of a national bureau, the Chiefs of Police of a number of cities of the State met together and organized as a state association at Coppa's restaurant, San Francisco, Dec. 8, and elected August Vollmer, Chief of Police of Berkeley, president of the permanent organization. Chief of Police John F. Seymour of San Francisco will act as vice-president. Those present at this meeting included the following Chiefs: John Seymour, of San Francisco; Adelbert Wilson, of Oakland; August Vollmer, of Berkeley; Alexander Galloway, of Los Angeles; John Conrad, of Alameda; Frank Briare, of Stockton, and George Kidder, of San Jose; Captain of Detectives Walter J. Petersen, of Oakland, and George F. Skelly, Secretary of the Police Commission of San Francisco. Skelly was elected secretary of the Chiefs of Police Association, which, besides including the heads of the various Police Departments, will admit to membership the Captain of Detectives in each city.

The plan for the State Bureau of Identification of Criminals came from Captain of Detectives Petersen, of Oakland, and when the bureau is established it will be the first of its kind in the United States. The matter was discussed in detail and a committee was appointed to draw up a bill to be

presented to the next Legislature providing for the establishment of the bureau. The committee consists of Chief of Police Wilson, of Oakland; Chief of Police Seymour, of San Francisco, and Chief of Police Galloway, of Los Angeles, with Chief of Police Vollmer, of Berkeley as ex-officio member. The plans for the bureau are elaborate. It will include the four most prominent modes of identification known to police work in France, England and the United States, these being the picture method, Bertillon, finger print, and the marks and scars system, which was originated by Captain Petersen and which has been in use in Oakland and other cities for a number of years. When the system becomes extended to other states and a national bureau is finally established it will be possible to hold criminals responsible for any crime committed in the United States when once they are caught in the toils of the law in any part of the country. It is thought probable that, if the State Legislature decides to conform with the wishes of the Chiefs of Police, the central bureau of identification will be located in Oakland in view of the elaborate system now employed there, and the fact that the records of Oakland are more complete and far-reaching than in any other city in California. The picture system of the Oakland department includes more than 80,000 photographs of criminals wanted and ex-convicts, with complete descriptions of each in the other three methods of identification. To escape identification as a "wanted" man, a criminal must run the gauntlet of the four methods, three of which are considered unerring in establishing identity and the photograph method being nearly conclusive. These entire systems are kept up by Lew Agnew, clerk to Captain Petersen, and Harry Caldwell, one of the most efficient Bertillon and finger-print experts in the United States. The association will meet in Sacramento during the next session of the Legislature and in the meantime at the call of the chair whenever the occasion demands. Annual meetings are planned, the first of which will probably be held next year in Los Angeles.

In regard to the new organization and its plans and purposes, Captain Petersen said: "The meeting is undoubtedly the first step in the establishing of a system that will prove such a problem to the professional criminal that crime will be materially reduced in the United States within a short time after the establishment of the national bureau, if the plans do not miscarry. A National Bureau of Identification has long been the dream of many of the police authorities of the country and it can readily be seen what this will mean in the apprehension of crooks and the ultimate prevention of crime, to a certain degree. There are many details which must be worked out and a great deal of work ahead of the association, but there are no difficulties which cannot be overcome; and, as the matter is one of the most important that will be brought before the Legislature, I do not see how the law-makers can overlook us in this instance. It is our plan to force by State legislation the sending in to a central bureau of the picture and description of every criminal taken into custody in even the smallest and most obscure parts of the State. Several of the larger cities exchange these records now, but we want a complete and unerring system."

New York Tax Reform Association—

Methods of assessment and other questions relating to taxation will be discussed at a State conference in Utica, N. Y., January 12 and 13 next. This conference was suggested by the delegates who were appointed by Governor Hughes to represent the State of New York at the recent international conference on State and local taxation held in Milwaukee. They were Judge Woodbury, chairman State board of tax commissioners; Lawson Purdy, president of the tax department, New York City; Professor E. R. A. Seligmann of Columbia University; Mayor S. A. Carlson of Jamestown, and E. L. Heydecker, assistant tax commissioner, New York. These delegates afterward addressed a joint letter to Wilson G. Low, president of the New York Tax Reform Association, suggesting that the association should take the initiative in arranging for a State conference on taxation. The suggestion was accepted and the January conference is the outcome. Judge E. E. Woodbury, of Jamestown, chairman of the State board of tax commissioners, will act as chairman of the conference. The purpose of holding this conference is to afford an opportunity for a discussion of problems and administrative difficulties, which are known to all officials who have to administer the tax law, and also, of those matters of taxation that have long been before the public and concerning which there is a general agreement that something ought to be done. It is not intended to take up any details of State or local expenditures or any remote questions of taxation, but only such matters as are non-partisan and in regard to which some immediate improvement in the tax laws of the State may reasonably be expected. Invitations are being sent to the mayor of each city, to the boards of supervisors, presidents of villages, universities, chambers of commerce, boards of trade, and civic and commercial organizations, state-wide in membership, requesting them to appoint delegates. To insure a fair representation to those sections of the State, which, on account of distance may not be able to send many delegates, each city or organization represented will have only one vote. The program as arranged provides for five sessions and to insure time for proper consideration of various matters, all addresses will be limited to twenty minutes. One session will be devoted chiefly to local assessment, and informal discussion by tax officials of their problems. Another will take up the personal property tax, with especial reference to Mayor Gaynor's proposal to abolish it in New York City. Another session will be devoted to "administrative difficulties," particularly in connection with the special franchise tax. Among the other subjects announced are: The new inheritance tax law, assessment of manufacturing corporations, assessment of railroads and other public service corporations.

Details of the proposed conference are in the hands of a committee on arrangements composed of Chairman A. C. Pleydell, secretary of the New York Tax Reform Association, and also corresponding secretary of the International Tax Association; Edward L. Heydecker, assistant tax commissioner of the city of New York, and one of the delegates sent to the Milwaukee tax conference; John D. Kerman and Wm. Pierrepont White of Utica, who have been active in public affairs.

Washington Good Roads Association.—At its meeting at Walla Walla the society endorsed the proposition of Samuel Hill to build a State road clear around the State provided he be furnished 1,000 convicts, their food, guards and clothing and material and certain aid, and guaranteeing under \$1,000,000 bond to complete the road in four years. President J. C. Lawrence pointed out the interdependence of the team haul, the principal purpose of primary transportation and the passenger movement, represented by the automobile, and urged greater harmony between the two. Addresses were made by J. J. Donovan, First Vice-President of the Association, City Attorney J. W. Brooks of Aberdeen, Miles C. Moore, H. H. Reynolds, Samuel Hill, M. J. Corrigan, County Commissioner of King County John P. Hartman, Frank Terrace, Judge Ronald of Seattle, C. L. Whitney, R. H. Thomson and State Highway Commissioner H. L. Bowby. Wenatchee was decided upon as the next convention place, and in connection therewith it is intended to invite delegates from the surrounding country for the promotion of an Interstate Good Roads Association. The following officers were elected:

President, R. H. Thomson, City Engineer, Seattle; First Vice-President, J. J. Donovan, Belligham; Second Vice-President, H. A. Reynolds, Walla Walla; Third Vice-President, H. H. McGowan, Tacoma; Fourth Vice-President, P. W. Cox, Colfax; Fifth Vice-President, E. M. Gillette, Wenatchee; Treasurer, J. C. Scott; Secretary to be chosen later by President Thomson.

Executive Committee—Judge C. H. Handford, Seattle, Chairman; John P. Hartman, Seattle; Frank Terrace, Orilla; S. A. Perkins, Tacoma; W. H. Cowles, Spokane; C. B. Kegley, Palouse; Miles C. Moore, Walla Walla; E. W. Purdy, Belligham; J. A. Falconer, Everett; F. J. Wilmer, Rosalia; Jap P. Graves, Spokane; Lorge Peterson, Tacoma; Ford W. Lewis, Olympia; W. W. Robertson, North Yakima; G. C. Lancaster, Seattle; E. L. Farnsworth, Wilbur; H. L. Bowby, Olympia; E. E. Beard, Vancouver.

Young Men's Club, Albany, N. Y.—George E. Willcomb, chemical engineer in the laboratory of the city filtration plant, gave an interesting talk on "The Purification of Water Up to Date," before the Young Men's Club of the First Methodist Church last week. Engineer Willcomb discussed the whole subject of purifying potable water for use in communities where the pure natural supply cannot now be obtained, and also gave a complete description of the Albany city filtration plant and all its workings.

Board of Trade of Harrisburg, Pa.—The Board of Trade adopted a resolution offered by Col. Demming, asking that Senator Fox and other State representatives in the next General Assembly urge that the State roads be constructed and maintained by experts, and that the engineers have personal supervision of road repairing and maintenance. The resolution offered by Mr. Demming was as follows:

Whereas, Properly built and properly maintained public highways are very important to the best welfare of our people; and

Whereas, There is widespread interest in the betterment of all our roads, particularly those most generally traveled; and

Whereas, There has been much difficulty thus far in keeping many of the public roads in proper repair, after reconstruction by our Commonwealth; therefore

Resolved, That this Board of Trade favors the maintenance of all State reconstructed roads by the properly constituted officers of Pennsylvania, at the same ratio of expense as when the roads were reconstructed.

Resolved, That we also favor the employment of experts in public road building, and in their maintenance; and that engineers of this class have the personal supervision of road repairing and maintenance in all our counties.

Resolved, That we most respectfully ask our State Senators and our State Representatives in the General Assembly to do everything in their power whereby all our public highways shall be constructed and maintained in the manner herein favored.

Calendar of Meetings

December 12-23.

National Association of Cement Users.—Annual Convention, New York, N. Y.—Richard L. Humphrey, President, Harrison Building, Philadelphia.

December 20-21.

Minnesota Good Roads Association.—Annual Meeting, St. Paul, Minn.

December 21.

American Society of Civil Engineers.—Regular Meeting—C. W. Hunt, Secretary, 220 West 57th street, New York.

December 27.

American Association for the Advancement of Science.—Annual Meeting, St. Paul, Minn.—L. O. Howard, Secretary, Smithsonian Institute, Washington, D. C.

December 27-28.

American Society of Agricultural Engineers.—Annual Meeting, Lafayette, Ind.—E. W. Hamilton, Secretary, Iowa State College, Ames, Ia.

December 27-30.

American Statistical Association.—Annual Convention, St. Louis, Mo.—C. W. Doten, Secretary, 491 Boylston street, Boston, Mass.

December 30.

Arkansas Association of Surveyors and Civil Engineers.—Second Annual Meeting, J. O. Jones, Secretary.

January 2-6.

Canadian Society of Civil Engineers.—Annual Meeting, Winnipeg, Manitoba, Can.—C. H. McLeod, Secretary, 413 Dorchester street, West, Montreal, Que.

January 6-7.

Association of Kansas Police Chiefs.—Annual Meeting, Wichita, Kan.

January 10-15.

Organization of City Officials for Standardizing Paving Specifications.—Conference, New York, N. Y.—B. T. Fendall, City Engineer, Baltimore, Md., Chairman of Committee.

January 11-13.

Michigan Engineering Society.—Annual Meeting, Lansing, Mich.

January 12-13.

New York Tax Reform Association.—State Conference on Taxation—A. C. Pleydell, Secretary, New York, N. Y.

January 12-14.

Montana Society of Engineers.—Annual Meeting, Helena, Mont.—Clinton H. Moore, Secretary, Leyesen Block, Butte, Mont.

January 12-14.

National Civic Federation.—Annual Convention, New York, N. Y.—D. L. Case, Secretary, 1 Madison avenue, New York, N. Y.

January 12-14.

Indiana Engineering Society.—Annual Meeting, Hotel Denison, Indianapolis.—Charles Grossman, Secretary, Union Trust Building, Indianapolis, Ind.

January 16-20.

Canadian Cement and Concrete Association.—Annual Convention and Exhibition, Toronto, Ont.—R. E. W. Hagarty, Secretary, 662 Euclid avenue, Toronto, Ont.

January 17.

Engineers' Society of Western Pennsylvania.—Annual Meeting, Pittsburgh, Pa.—Elmer K. Hiles, Secretary, 803 Fulton Building, Pittsburgh, Pa.

January 17-19.

American Institute of Architects.—Annual Convention, San Francisco, Cal.—Glenn Brown, Secretary, Octagon, Washington, D. C.

January 18-19.

American Society of Civil Engineers.—Annual Meeting, New York.—C. W. Hunt, Secretary, 220 W. 57th street, New York.

January 20.

Illuminating Engineering Society.—Annual Meeting, New York, N. Y.—P. S. Millar, Secretary, 29 W. 39th street, New York, N. Y.

January 24-26.

American Society of Heating and Ventilating Engineers.—Annual Meeting, New York, N. Y.—W. M. Mackay, Secretary, P. O. Box 1818, New York, N. Y.

January 24-26.

Ohio Engineering Society.—Annual Meeting, Columbus, O.—C. J. Knisely, Secretary, New Philadelphia, O.

January 25-27.

Illinois Society of Engineers and Surveyors.—Annual Meeting, East St. Louis, Ill.—E. E. R. Tratman, Secretary, 1636 Monadnock Block, Chicago, Ill.

February 1-3.

Nebraska Cement Association.—Western Cement Exposition, Omaha, Neb.—Peter Palmer, Secretary, Oakland, Neb.

February 6-11.

National Brick Manufacturers Association.—Annual Convention, Louisville, Ky.—T. A. Randall, Secretary, Indianapolis, Ind.

May 29.

American Water Works Association.—Annual Convention, Rochester, N. Y.—J. M. Diven, 14 George street, Charleston, S. C.

May.

City Commission Congress.—Meeting, Galveston, Tex.—Mayor Lewis Fisher, Chairman of Committee, Galveston, Tex.

PERSONALS

ALLEN, E. O., Chief of Police of Shreveport, La., has resigned and will return to his employment with a railroad company; Fitzhugh H. Lucar, now First Lieutenant, has been promoted.

EVANS, ASA, Superintendent of Police of Vincennes, Ind., has been reduced to Desk Sergeant, succeeding John Adams, promoted to Superintendent.

HODGES, CAPT. EDWARD D., Fire Company No. 4, Norfolk, Va., died last week from injuries received by falling through an elevator at a fire. He was 40 years old.

KISSAM, H., Chatham, Va., has been elected Chief of Police and Sergeant.

KROHN, FRED W., Dunkirk, N. Y., has been promoted from Sergeant to Chief of Police, succeeding M. P. Quirk, who becomes clerk of the Poor Department and Court Officer.

LATHBURY, B. B., Philadelphia, Pa., announces a merger of the interests of B. B. Lathbury, Consulting Engineer, formerly President of Lathbury & Spackman, Inc., and of the D'Olier Engineering Company. The company, with enlarged scope and facilities, will continue the general and special engineering, manufacturing and contracting business, heretofore carried on by the respective interests.

LATTA, L. M., Superintendent of Water Works of Akron, O., has resigned, and John C. Lodge, a newspaper man, has been appointed to the position.

LINK, JOHN, Newport, Ky., former Chief of the Fire Department, and Edward G. Lohmeyer, jeweler, have been appointed as members of the Board of Water Works by Mayor Kreiger, succeeding Peter Bardo, Sr., and Joseph Rehling.

LORD, CHARLES R., Cortland, N. Y., has been appointed City and County Sealer of Weights and Measures with a salary of \$960 per year, the city to pay 20 per cent of this.

MCCORMICK, CAPT. JAMES J., New York Fire Department, was retired on full pay of a Captain, \$2,500, last week by Commissioner R. Waldo, who characterized him as the bravest fireman who ever donned a helmet; Capt. McCormick, who had been in the service 39 years, distinguished himself at the fire at the Pratt Oil Works in Brooklyn in 1888, when he saved his entire crew and was himself burned from head to foot and lost the use of both arms; he has since done clerical work and must now undergo an operation as a result of his injuries at that time.

MURRAY, THOMAS, East Grand Forks, Minn., has been appointed a member of the Board of Water Commissioners, succeeding A. N. Briggs.

NUNN, HERBERT, El Paso, Tex., has been made City Engineer, vice J. H. Todd, who was made engineer of the water works, which were recently taken over by the city. Mr. Nunn was formerly County Road Engineer.

WILSON, A. J., Spokane, Wash., has been appointed a member of the Park Board by Mayor N. S. Pratt, succeeding Arthur W. Jones, removed to Seattle.

CONCRETE MIXERS AT THE NEW YORK CEMENT SHOW

THE first annual New York Cement Show, under the management of the Cement Products Exhibition Company, opened in Madison Square Garden December 14 and continued for a week. Four aisles on the main floor were lined with booths on both sides and around the balconies and in the basement were other booths. The number of exhibitors given in the official catalogue—and there were a number of entries too late to be printed in the list—was 174. The history of cement from the factory to the consumer was portrayed in every detail. Even more, consulting engineers who design cement mills and manufacturers who make machinery for them were represented.

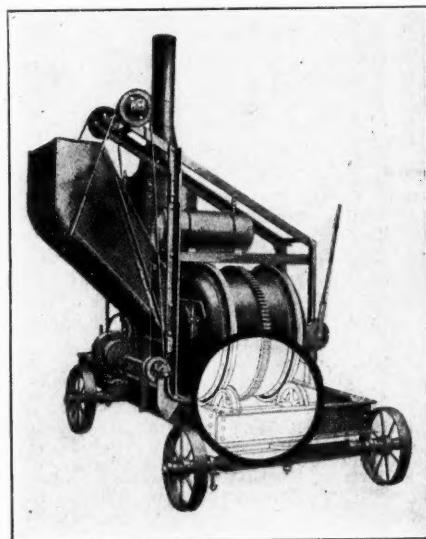
The cement manufacturers perhaps have the most difficult problem of all to solve—how to exhibit the merits of the raw material in an attractive way. The variety of methods adopted is astonishing. Of course all had samples of their cement in jars as well as of the materials from which it is made. Photographs figured largely. Models of architectural ornamentation were prominent methods employed especially by the makers of light-colored cement or cements which for some special reason are adapted to this purpose. Extreme cases illustrating this point are the exhibitions of Keene's white cement, with ornamental coloring work in imitation of marble. Another case is that of Alsen's German red-label cement, which sets so quickly that it can be removed from the finest molds in ten minutes. This was included in the exhibit of the Alsen's American Portland Cement Works, New York City. Other manufacturers and their exhibits were as follows: Blanc Stainless Cement Co., Allentown, Pa., architectural ornaments. Nazareth Cement Co., architectural ornaments. Universal Portland Cement Co., Chicago, Ill., bundles of empty bags of cement rolled up in proper shape for shipment. Allentown

Portland Cement Co., Allentown, Pa., photographs of works. American Cement Co., Philadelphia, Pa., makers of Giant cement, samples, vases, ornaments. Sandusky Portland Cement Co., Sandusky, O., architectural ornamental works. Universal Portland Cement Co., Chicago, Ill., exhibited an elaborate fancy design of a booth, the first of its kind ever made, showing the combination of tile and concrete; the original design was made by Architect Wright, Chicago, Ill., and it was executed by the Decorative Supply Co., New York City. Atlas Portland Cement Co., New York City, architectural ornaments, columns, balconies, vases, fences; also a large model portraying 78 distinct uses of concrete; design by Alfred Hopkins. Alpha Portland Cement Co., Easton, Pa., a handsome drinking fountain for both men and horses and some settees suitable for park use. Universal Portland Cement Co., second exhibit, samples of raw and manufactured materials; an automatic cement sampler such as is actually used in their mills for taking samples for testing purposes; a sample is taken every eight seconds from a belt conveyor. Bert Bros.' Keene's Cement Co., Medicine Lodge, Kan., pedestals and urns of pure white. Dexter Bros. Co., Boston, Mass., cross beams imitating wood very closely in color and graining, architectural ornaments. Edison Portland Cement Co., New York, a cement stucco house with hollow tile roof, ornamental columns; also exhibition of Edison's waterproof paint made to cover deficiencies in ornamental concrete construction. Lawrence Cement Co., New York, architectural ornaments. Pennsylvania Cement Co., New York, architectural ornaments. Universal Portland Cement Co., Chicago, third exhibit, complete working model of plant, showing moving cars, etc. Virginia Portland Cement Co., New York, N. Y., samples of raw materials and fin-

ished product. The Colloseus Cement Co., New York, explained by means of samples and carefully prepared literary matter the merits of a cement new to this country though it has been manufactured in Germany for a number of years. The cement is claimed to equal the best Portland in strength, to be non-staining due to absence of iron, non-expanding and uniform in color. It is said to have unusual fire-resisting properties owing to small percentage of lime and great durability in sea water. The fineness of the cement, 90 per cent, is claimed to pass a 200-mesh sieve, is an obvious merit.

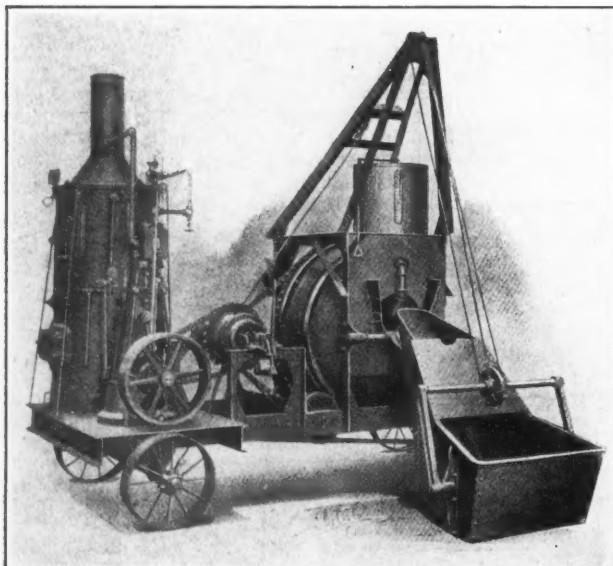
Concrete Mixers

The need of all cement users, no matter what their lines of work, for concrete mixers made the collection of more than a score of these machines one of the most interesting in the hall.

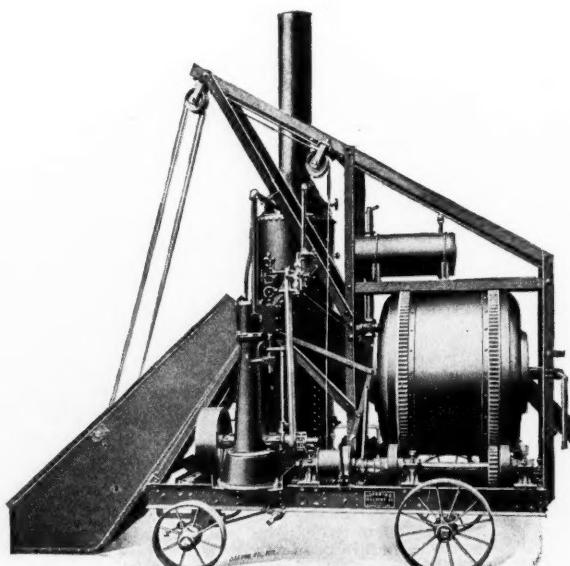


MARSH-CAPRON—Marsh-Capron Manufacturing Co.

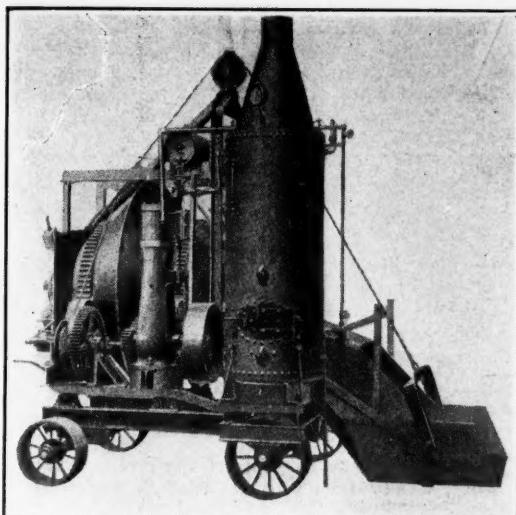
They attracted the most attention and certainly made the most noise—far surpassing Sousa in volume. Not many years ago contractors often used to say they didn't see much advantage in the use of a machine, but they always used to add, "it makes you independent of your labor." The old way was to organize a gang until they acquired con-



MILWAUKEE—Milwaukee Concrete Mixer and Machinery Co.



KOEHRING—Koehring Machine Co.



FOOTE—Foote Manufacturing Co.

siderable skill, whereupon they struck for more pay. The machine is an incentive to steady work and satisfaction with the conditions of existence. Although the variety of machines is great and would appear to cover every possible need, a visitor was heard to say that he couldn't find just what he wanted. Perhaps he had not made the complete circuit or the conditions of his work must have been unusual. Two types of machines were most in evidence. The non-tilting drum and the lighter continuous mixer with accurate devices for measuring. Although most of the heavy machines do not tilt, it is notable that two or three of the largest manufacturers make the tilting machines. The variety of devices for measuring in the continuous type is surprising. While originally designed as mixers of mortar for blocks or other molded work, they are claimed to mix any material which conforms to the ordinary specification for cement work. To get the greatest capacity out of them gravel or fine stone should be used. One manufacturer frankly states the capacity of his machine as twice as great on gravel as with broken stone. The accuracy of the proportioning probably has much to do with the capacity of these machines. If the materials are dropped into the mixing trough together in the right proportion it is obvious that the principal object of the mixing is accomplished right at the beginning.

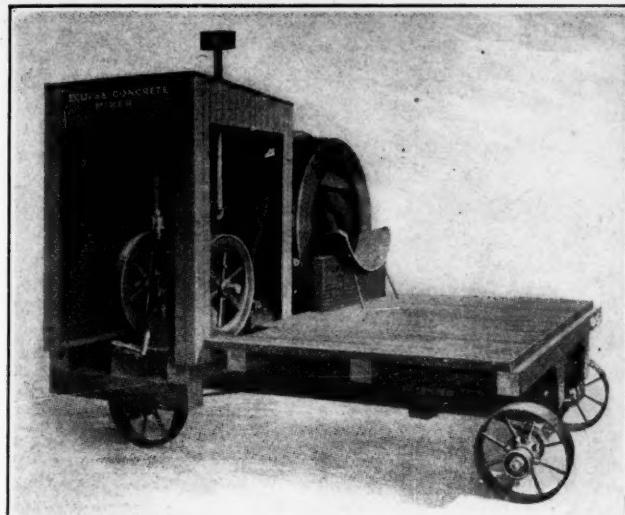
Batch Mixers—Drum Type

The Koehring Machine Company, Milwaukee, Wis. exhibited two of their mixers, one of 7-foot capacity, dry meas-

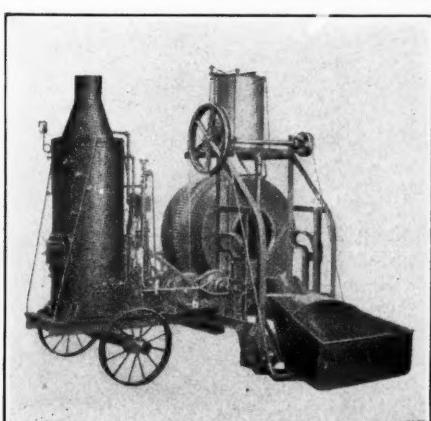
ure, the other of 11. The small machine was equipped to be driven by a gasoline engine. In reality it was driven by a motor, as in fact was all the other machinery at the show, temporary connections and motors being installed for the purpose. The small machine was a side loader and had an automatic water tank. The large machine was built to be driven by a steam engine and boiler. It was equipped with a batch hopper. This year the Koehring Company have built all of their trucks of steel instead of wood, as was generally done formerly. The drum of these mixers are revolved by means of two large gears, a feature which is claimed to give steadiness, economy of power and low maintenance cost. The heads of the mixer are large and substantial, being made of semi-steel. As the drum is revolved at a speed of about 17 revolutions a minute and as it discharges in about 4½ revolutions the time of discharge is about fifteen seconds. In all mixers of this type during the past year there seems to have been a tendency on the part of the manufacturers to increase the speed of discharge so as to make them compare in that respect much more closely to a tilting mixer than formerly. The way that this has been accomplished is, in general, to increase the size of the

blades or wings that throw the material onto the chute and also to increase their number. The aim of the manufacturers of the Koehring Company has been to produce a substantial machine, and as evidence of their success in this direction they point to the fact that they have made many sales to the contractors doing the New York State barge canal work, which is very heavy construction. All gears are made of steel and the rollers have wide faces and are of chilled steel. The elevating charging bucket is strong and simple, and, it is said, cannot get out of order. This company makes a street paving mixer with a conveyor to distribute concrete along the face of the work. These machines, of course, take up a great deal of space in an exhibition, and for this reason this company, like most of the others making similar machines, did not exhibit them.

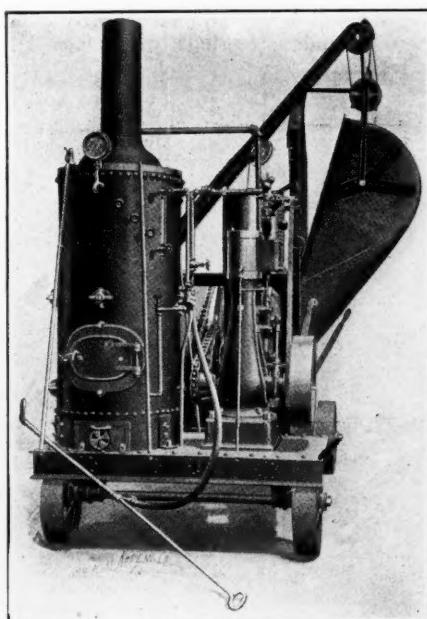
The Foote Manufacturing Company, Nunda, N. Y., exhibited a one-half cubic yard street paving batch mixer. A steam boiler and engine supplies the power and also propels the mixer forward, all of the machinery being mounted on a steel truck with 24-inch diameter wheels and ten-inch steel tires. The loading device is of unusual shape, very large, lying flat on the ground, open at the front instead of boxed shaped, and flaring so that men with wheelbarrows can bring them out to it just as if it were a concrete board and have plenty of room to dump and return to their place without interfering with each other. The batch can be discharged in about a quarter of a minute. The drum is of much greater diameter and is shorter through the axis than in most machines. In fact the drum



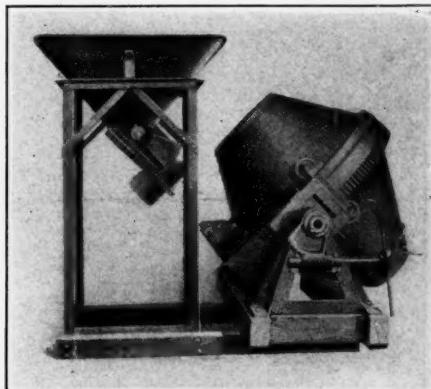
ECLIPSE—Standard Scale and Supply Co.



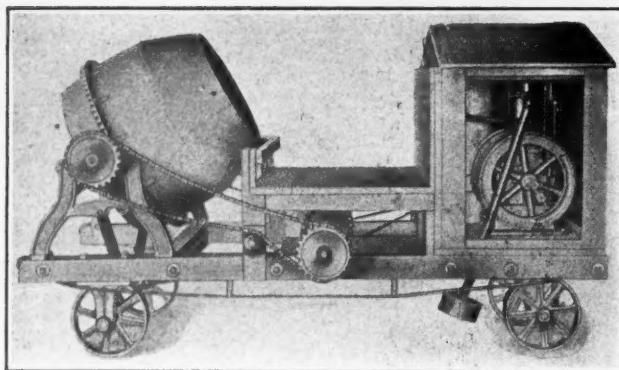
CHICAGO—Chicago Concrete Machinery Co.



CHAIN BELT—Chain Belt Co.



SMITH—T. L. Smith Co.



SNELL—The Abbott-Dodge-Brooks Concrete Co.

can hardly be called a cylinder but is shaped like two cones placed with their bases together. It is driven by two gears. This company also manufacture a continuous mixer for street work. The company's representative at the show said that there had been a notable tendency this season to use the batch mixer for street work in preference to the continuous machine. This had been particularly the case in a number of cities in Oklahoma, where all complaints about the quality of the work stopped as soon as the change was made from the continuous to the batch machine. The machine exhibited had a short discharge chute which would throw the material for a little distance to the right or the left, but they also equip it with a conveyor, if desired. Want of space was the principal reason for not showing it here.

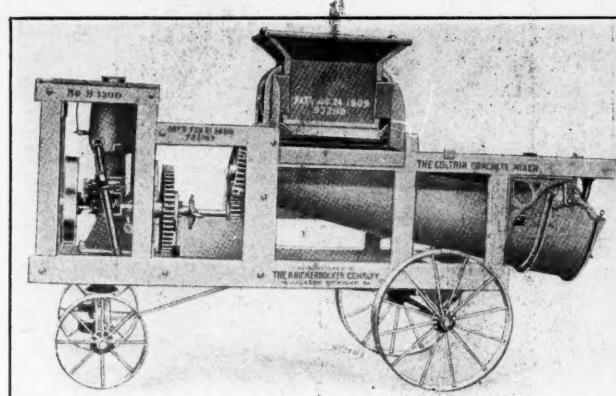
The Marsh-Capron Manufacturing Company, Chicago, Ill., exhibited a drum mixer of the non-tilting type. They called particular attention to the construction of the large gear which is made in five interchangeable segments. This is considered an important item in reducing cost of maintenance, since if a gear is stripped in an accident only one-fifth of it need be renewed. The company also exhibited a large tilting mixer.

The Chain Belt Company, Milwaukee, Wis., showed a one-half cubic yard steam driven mixer. It was equipped with a power loader and automatic water tank. The company claims that their mixer operates with less power than most mixers, as gears are entirely eliminated in its construction. Steel roller chain belt with case-hardened

steel pins and bushings, is used throughout for driving purposes. The track surfaces and rollers are accurately machined and all bearing surfaces furnished with steel compression grease cups for lubrication. The driving mechanism is called noiseless. The drum is made entirely of semi-steel cast in two sections bolted together. Corners are rounded and shaped to project the material towards the center. The sprocket teeth which take the place of the ordinary large gear are cast in segments bolted to the drum. The mixing blades are quarter inch steel bolted to brackets. The blades are raised a little to allow water to pass under them. The frame is constructed of heavy steel channels and angles braced and riveted together. It is made short and wide to insure steadiness. The width of the frame allows the engine and boiler on steam equipments to be placed side by side so that the engine flywheel can be used for driving other small machines. The rollers are chilled semi-steel and have removable bronze bushings.

The Milwaukee Concrete Mixer and Machinery Company, Milwaukee, Wis., exhibited three machines, one of them one and one-half cubic yards mixer and the other a one-third cubic yard. For the No. 00 gasoline power is used. A new feature this year is the housing of the engine. Instead of the usual doors the rear and base of the sides of the casing lifts up, exposing the whole engine to view. In the machine having the automatic loading device the bucket is of sufficient size to hold a full batch and is charged from the ground. No legs or braces are

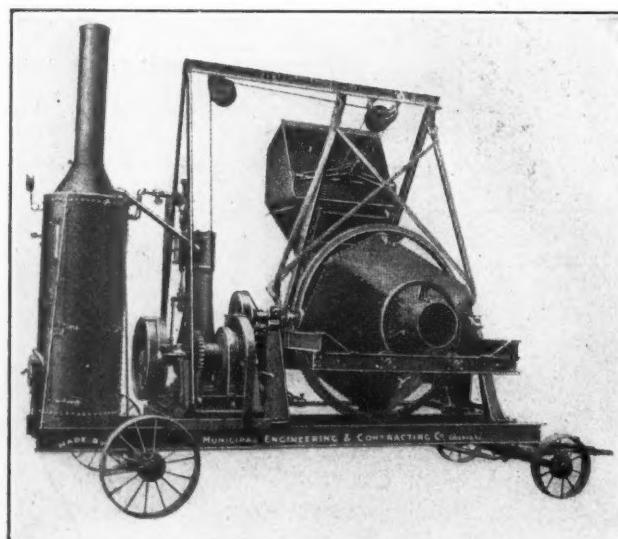
COLTRIN—Knickerbocker Co.



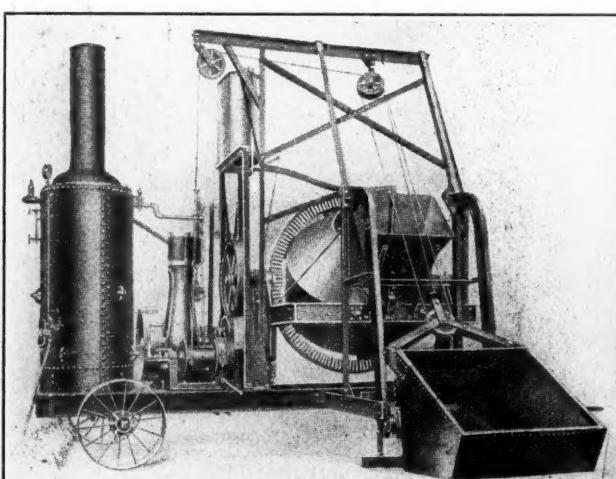
necessary to support the frame. When ready to move all that is required is to hoist the loading bucket into discharging position, fasten the chain from the bail to the upright boom, and the machine is ready to move. A peculiar self-oiling device on the winding drum and in the track wheel are claimed as features of special merit, and it is only necessary to replenish oil once a month.

Chicago Concrete Machinery Company, Milwaukee, Wis., Wm. J. Cullen, New York, agent, exhibited a Chicago concrete mixer. This is a cylindrical mixer with a single gear with self-loading device and water tank. With this device two or more batches of concrete can be handled at once, thus greatly increasing the output of the mixing plant. This company makes a very convenient gasoline driven outfit for contractors who desire an output of not more than fifty cubic yards a day.

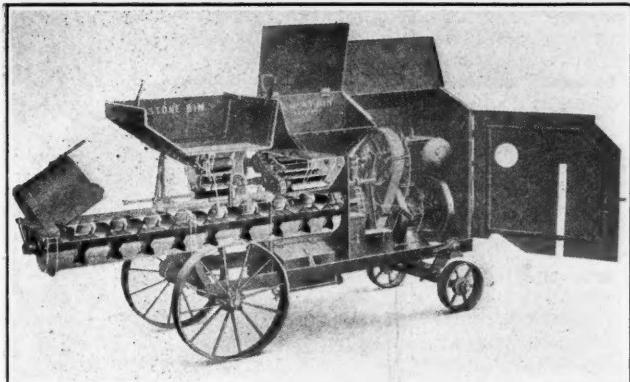
The Standard Scale and Supply Co., Pittsburg and New York, showed the Eclipse mixer. This machine sets rather low down so that it can be loaded directly from wheelbarrows. The mixing drum is unusually long measured through its axis and of comparatively small diameter. Two large gears are necessarily used for driving it. An unusual feature of the machine and quite a convenience is the fact that the discharge arrangement is operated from the feed end. The setting of the machine used for street work is a little unusual, the boiler being placed beside the drum. This makes the truck much wider than those of concrete mixers generally used for street work. This feature does not seem to be objectionable, however, in fact, the arrangement of the parts of the ma-



CHICAGO IMPROVED CUBE—Municipal Engineering and Contracting Co.



POLYGON—Waterloo Cement Machinery Co.



EUREKA—Eureka Machine Co.

chine seems very well suited to the method in which it is intended to be operated. That is, by feeding directly from wheelbarrows which are brought up on to the low platform in front of the machine. The Standard Scale and Supply Company are manufacturers of high grade materials in other lines and claim that their knowledge of metals has enabled them to make unusually strong in proportion to its weight. Instead of purchasing the steel and other high grade metals used, the company makes them in their own shop. The weight of the machine is 2700 pounds.

Tilting Mixers

The Municipal Engineering and Contracting Company, Chicago, Ill., exhibited a six-foot mixer with charging elevator and a contractor's hoist all in one truck. Their mixer is called the Chicago Improved Cube, and according to the claim of the manufacturer possesses merits as a mixing machine which no other than a cube mixer can have. The machine is claimed to mix the most uniform concrete on account of what are described as folding and compression movements. At any rate it is a fact that engineers generally, and U. S. Government engineers particularly like to have a cube mixer used. Specifications sometimes state that concrete shall be mixed equally well as that mixed in a cube mixer. The Improved Cube means that the cube instead of being revolved on a track running along the corners is shifted a little to one side so as to give a more complicated movement to the concrete than in the original machine. Speed of mixing is therefore the merit claimed for the machine. The batch is discharged by tilting the cube, and all the time it is discharging the mixing process is going on. The machine is not stopped either when charging or dis-

charging and as there are no buckets, paddles or inside contrivances to dam the opening the concrete has a quick and free flow. The frame is made of structural steel riveted together, is neat in appearance, showing careful design and proportion. The castings that are subject to strain are made of steel. The cube is made of blue annealed steel with rounded and reinforced corners. It has an inner lining which can be replaced when worn. The anti-friction rollers and trundles are made of chilled car wheel iron. The journals on the main driving shafts have removable bronze bushings. The company makes a large variety of sizes of mixers with various mountings. They wish to have the fact known that their mixers were chosen by the engineers for the Panama Canal work.

Waterloo Cement Machinery Company, Waterloo, Ia., exhibited their Polygon or many sided mixer. The drum is hung at such an angle that when revolved the complicated mixing motion is set up, depending neither on blades or interior devices. In ten revolutions of the drum, it is said, or less than thirty seconds, the batch is mixed and ready to dump all or part of it as desired, and this while running at full speed. The direct bevel gear drive is employed, the power being transmitted from the main driving shaft to the drum gear by a bevel pinion. This company recommends the use of what they call the super-hopper, which enables the contractor to increase his output without materially increasing his initial outlay. With the aid of this device one batch can be assembled while another is being mixed. The super-hopper is mounted on a steel frame attached to the machine. The machine may also be equipped with a side loader which can be adapted to work at any height above the ground. The guiding tracks can be easily ex-

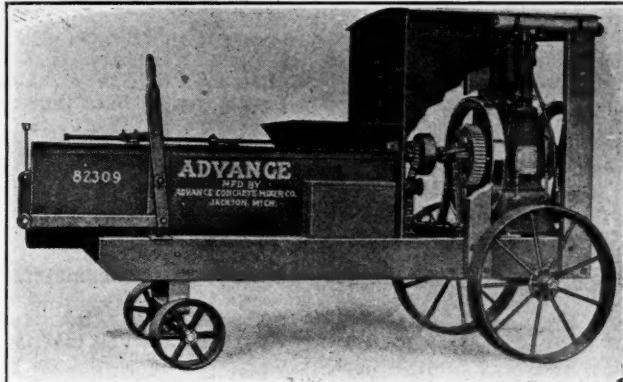
tended, doing away with elevators or other apparatus to elevate the charge to the machine. The loader consists of a double track securely fastened to the loader frame work. The rollers are placed directly on the scoop, thus doing away with carriage or other attachment to carry the scoop up the channel guides.

The scoop is raised by means of a special friction hoist which is claimed to be positive in action and reduce friction to a minimum.

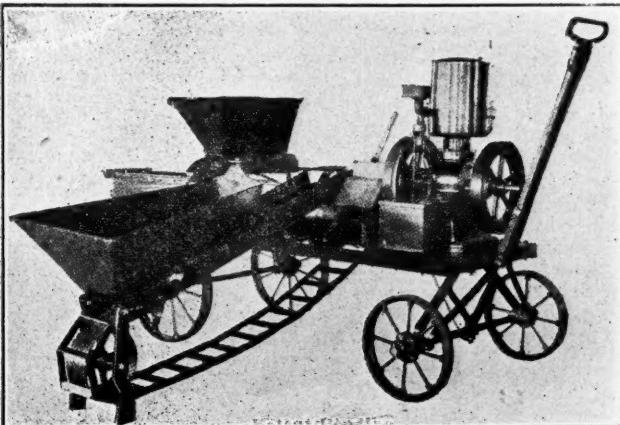
T. L. Smith Company, Chicago, Ill., exhibited two mixers, a ten-foot gasoline driven, self-loading, non-tilting, 10-foot (loose measure) mixer and a 14-foot tilting mixer. The Smith tilting mixer is a double conical drum with blades arranged in V-shaped sets, which pick up and turn over the materials, rolling them to the center. The mass is squeezed through restricted openings between the converging blades. It is claimed that two turns of the drum make a perfect mix. The drum turns while it tilts. The merits claimed for the Smith are steady economical operation.

The Ransome Concrete Machinery Co., Dunellen, N. J., have made some improvements in their mixer this year. The merits which they claim for the machine are that all roller bearings have brass bushings. The gear in the center line of the drum instead of at the side is claimed to reduce friction and economize power. The wing capacity has been increased so as to make the discharge quicker. The wings are larger and there are more of them. The mixer can now be discharged in 15 or 20 seconds. The chute is made of unusually thick steel and the arms from which it hangs are heavier than in most mixers.

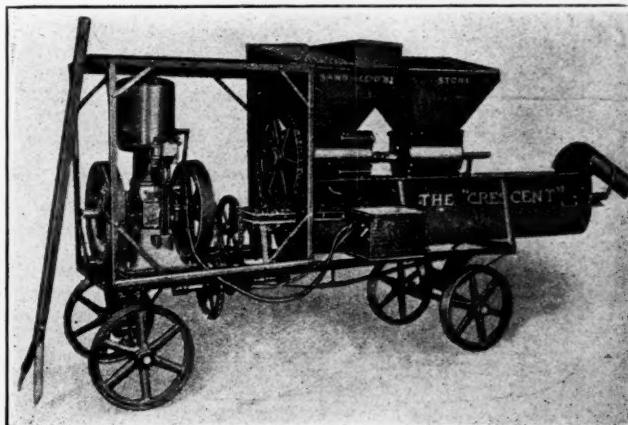
The Abbey-Dodge-Brooks Concrete Co., of Newark, N. J., exhibited the Snell mixer, which, on account of its peculiar



ADVANCE—Advance Concrete Mixer Co.



ELITE—Elite Manufacturing Co.



CRESCENT—Raber & Lang

construction stands in a class almost by itself. The drum is a cylinder with blades, open at one end. It tilts so that the loading and discharging are from the same end of the drum. The tilting power throws the concrete in a direction opposite to the loading side. The mixture is in plain sight all the time, so that there will be no question about the mixing or the amount of water used. The opening in the drum is so large that the discharge is quick. The mixer is mounted on portable trucks with gasoline or steam drive.

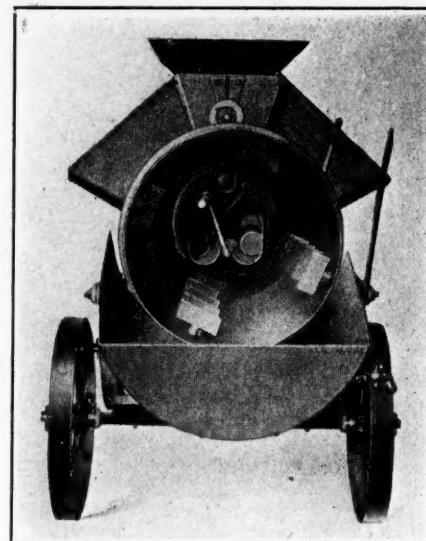
Continuous Mixers

The Knickerbocker Company, Jackson, Mich., had on exhibition two of their Coltrin mixers, both of the same size, one steam and one gasoline driven. In this machine the mixing device is peculiar. The mixing is done in a steel shell with the bottom rolled to the shape of a half cone, by revolving blades $1\frac{1}{2}$ inches wide, 7-16 inches thick, 5 feet long, extending in a spiral from head to foot of machine where the mixture is discharged. The concrete is cut through and turned over eight times at every revolution of the mixing cylinder, which revolves 30 times per minute.

The feed device has three pockets for automatically proportioning rock, sand and cement or gravel and cement, and the proportioner works without the use of gears, sprockets or chains. A pitman on the drive end of the cylinder shaft works by connecting rod with a crank arm or loose bearing attached to $1\frac{1}{2}$ -inch square shaft, which forms half of a jaw clutch. The other half of clutch is a sliding collar, operated by a lever, for throwing the feed in or out, leaving the mixing parts in operation if desired. The square shaft extends through the hopper body, and its use does away with all keys and key seats and the liability of their working loose. This arrangement gives a reciprocating action to the feeder, one pocket emptying while the opposite pocket is filling, and the same mechanism controls the cement pocket and feed. The capacity of the machines exhibited is 10 cubic yards an hour with stone or 20 cubic yards with gravel.

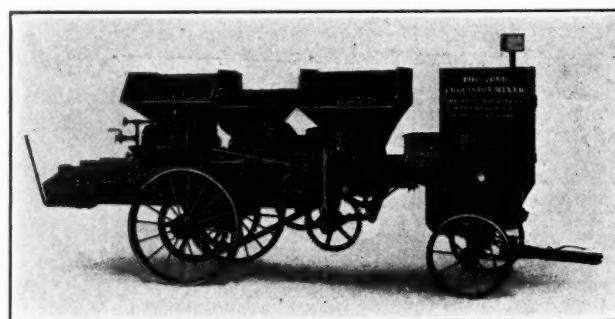
The Eureka Machine Company, Lansing, Mich., W. V. Johnson & Co., New

York agents, exhibited the Eureka mixer, a machine made for sidewalk or street work. The manufacturers state that they have sought to avoid the expense of first cost, operation and maintenance of the heavy mixers and avoid the weakness of machines that are merely mortar mixers for block makers. The feeding device, situated at the bottom of the hoppers, consists of four straight blades revolving on an axis, the blades forming four pockets which let the material down into the trough in the specified proportions. Rolls above the feeders serve to keep the pockets even full of materials and at the same time have some flexibility to allow any foreign substance to pass through without damage. A worm agitator in the sand bin keeps the sand and gravel moving. The different proportions are obtained by putting in or removing plates in the pockets of the three feeders. The plates are numbered and by referring to the proportion card giving printed instructions the mixer can be set to feed any proportion required. The blades of the mixer have a curved or crooked shape cross-section which facilitates the mixing. Dry mixing takes place before the water is reached. At the end of the trough is a hood which when lowered retains the material, converting the machine for the time being into a batch mixer. This is a convenience



NATIONAL—National Mixer Co.

proportion can be changed at a moment's notice while the machine is running, if necessary. This is done with what is called the "proportioning spool," which is shoved in and out to make any proportion. A scale is provided on the sleeve of the "spool," on which all proportions are marked. This spool is made of semi-steel with case hardened periphery, hence there is no wear-out to it. The principle involved is that of "two-cylinders of equal diameters are to each other as their lengths." The machinery is driven by sprockets and chain. The mixer and truck are all made of iron and steel. The hoppers are low for easy feeding with shovels and the watering device may be



PRECISION—Kent Machine Co.

when material is being taken away in wheelbarrows. The mechanism is driven by gas engine or steam engine, with belt and idler pulley, allowing instant stopping of feeders and mixing shaft without shutting down the engine.

The Cement Machinery Co., Jackson, Mich., exhibited their Systematic mixer. The peculiarity of this mixer is that the proportioning device is under lock and key. It is possible for the engineer in charge of the work to set the machine to the desired proportions, put the key in his pocket and go away, knowing that the feeding device cannot be changed by anyone but himself. There are three feed boxes into which the sand, stone and cement run from the hoppers. The bottoms of the hoppers are withdrawn simultaneously and the cement, sand and stone drop together into the mixing trough. The mixer has no springs, chains or sprockets in its construction, and is built entirely of iron and steel.

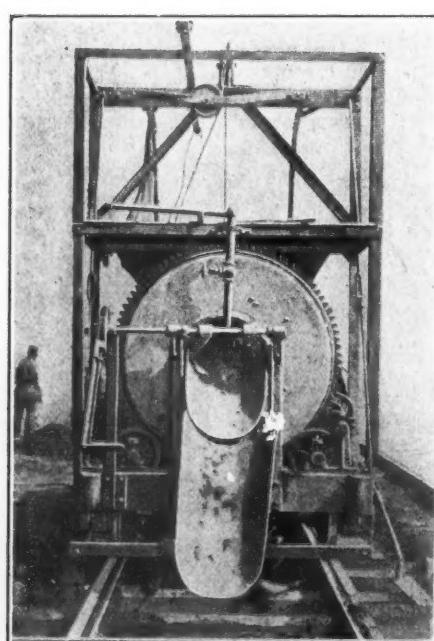
Raber & Lang Manufacturing Co., Kendallville, Ind., exhibited their mixer, which was developed originally for their own work of manufacturing sewer pipe, tile, brick, lime, etc. The proportioning is done with concave cylinders. At every revolution of each cylinder the cubic measurement of these cylinders is deposited in materials in the trough below. It has been endorsed by many; there is no clogging or bridging over, as is the case with some proportioning mixers. The

set to a uniform measure.

Advance Concrete Mixer Co., Jackson, Mich., showed two of their advance mixers. The machine is mounted on high trucks, 42-inch rear and 30-inch front, and is light enough, 2400 pounds, so that three or four men can easily move it. The hoppers are low enough to make shoveling easy. The machines are ordinarily driven by International engines. The mixer shaft is equipped with a 12-inch friction clutch pulley which will slip before any part of the machinery will break in case of clogging.

The National Mixer Co., Rochester, N. Y., exhibited their continuous mixer. In this machine the plungers feed the aggregates into a revolving drum and stationary deflectors carry them forward and upward, cutting and mixing thoroughly. After a dry mix water is applied and more mixing. The deflectors are raised from the surface of the drum and are easy to clean. The proportions are regulated by gear wheels and dials on which a scale is set. The nearer the rod is set to the hub the shorter the stroke, giving a small amount. Any proportion from 2 to 1 to 20 to 1 can be made.

The Elite Mfg. Co., Ashland, O., exhibited their Low Down Forced Feed Concrete Mixer. The hoppers are low enough so that wheelbarrows can be dumped into them.



RANSOME—Ransome Concrete Machinery Co.

(Continued next week)

TRADE NOTES

Cast Iron Pipe.—Chicago: Gas companies are beginning to negotiate for their next year's requirements. Quotations: 4-inch, \$27; 6 to 12-inch, \$26; 16-inch and up, \$25. New York: Little is being done in contracting for spring delivery. Quotation: 6-inch, carloads, \$22. Birmingham: It is believed that plants will be closed longer than usual for inventories owing to scarcity of orders. Quotations: 4 to 6-inch, \$19 to \$19.50; 8 to 12-inch, \$18 to \$18.50; over 12-inch, average, \$17. San Francisco: Tentative plans for gas main connecting towns in vicinity of Los Angeles, if carried out, will require a large tonnage.

Lead.—Quotation: New York, 4.50c.; St. Louis, 4.35c.

Wagons.—Haywod Wagon Company, Newark, N. Y., have received an order for eighteen (18) wet garbage wagons of 600-gallon capacity each, from the city of New Haven, Conn.

Electric Light Companies Merge.—Papers have been filed at the Capitol at Harrisburg, Pa., giving official notice of the sale of the franchises of a number of the electric companies recently incorporated for service in Berks, Montgomery and Dauphin Counties. Twenty-eight companies chartered to supply electricity in boroughs and townships of Berks and Montgomery Counties filed notices of sale to the Metropolitan Electric Company of Reading, and three, chartered for Lebanon County, of sale to the Edison Electric Illuminating Company, of Lebanon County. The Metropolitan and Edison companies are controlled by the Rigg interests. The three companies in Lebanon County were the Millcreek Township Electric Company, the North Lebanon Electric Company, and the Richland Electric Company. The consideration is not fully stated, papers filed at the Court House merely putting it at \$500 in each case.

Underground Conduits—W. N. Matthews & Brother, 219 North Second street, St. Louis, Mo., have issued a pamphlet containing specifications on underground conduit construction for all forms of work. These are supplemented by illustrations of manhole and conduit systems and figures showing the cost of constructing conduit systems in various kinds of streets. Space is also given to guy anchors and a number of accessories for both overhead and underground construction work.

Quarrying and Crushing Machinery—Plans for a large quarrying, crushing and manufacturing plant, to be erected by the Michigan Limestone & Chemical Company at Calsite, Mich., are nearing completion. All of the contracts for material and equipment will be placed through J. G. White & Co., New York City.

Fire Apparatus—Insurance interests have been making a careful investigation of fire protection equipment in California, and have recommended many improvements which are in most cases being provided for. Inquiries are coming out for fire engines, pumps and general water works machinery for all parts of the State.

Lehigh Cement.—The Lehigh Portland Cement Company in its December bulletin describes and illustrates the Asylum avenue viaduct, Knoxville, Tenn., which was built exclusively of Lehigh cement.

Fire Auto Tested.—The new 80-horsepower fire automobile truck from the Seagrave Company, Columbus, O., for the Walla Walla (Wash.) Fire Department, was given a severe trial before acceptance. It was driven 10 miles through mud, over rough roads and hills, carrying 14 men and a full equipment of fire-fighting apparatus. Among those who went out on the test drive were: Fire Chief Metz, Councilmen C. H. Whiteman, Harvey McDonald, Clint H. Cummings and Alfred Bachtold and Water Superintendent R. F. McLean.

Chapman Valves.—The Chapman Valve Manufacturing Company, Indian Orchard, Mass., announce that their plant at Indian Orchard, Mass., will be closed from the evening of December 31 to January 9, 1911, for annual inventory and repairs. The notice is issued in order that their customers may anticipate their requirements as much as possible.

Gasoline Pumping Units.—According to Counsel Jesse H. Johnson, Matamoras, gasoline-driven pumping units are in demand in Mexico. Four to eight-horsepower machines are in greatest demand, but as large units as 35-horsepower have been sold. One agent says that half a million dollars' worth of these machines could be sold if American firms would sell them on the installment plan. He says that the business would be safe.

Cement and Power Plants.—Lathbury-D'Olier Company, 114 Liberty street, New York, and Morris Building, Philadelphia, Pa., has been formed by the consolidation of two interests. B. B. Lathbury, member American Society of Civil Engineers, formerly located in the Land Title Building, Philadelphia, Pa., has specialized in the design and construction of Portland cement plants, which included well-known plants throughout the United States and foreign countries. The D'Olier Engineering Company, formerly 119-121 South Eleventh street, Philadelphia, mechanical and electrical engineers and manufacturers, have done extensive work in steam, electrical and hydraulic plants and industrial equipments in this country and abroad. The new company has established executive offices in Philadelphia and an office in New York, and with enlarged shop facilities in Philadelphia are prepared to carry on more extensive work than formerly.

Contractor's Equipment.—The L. J. Smith Locomotive & Equipment Company has recently been organized at Kansas City, Mo., and acquired a plant on Fourth and Central streets. In addition to general repair work on locomotives, steam shovels and contractors' equipment of various kinds, the company will deal in such machinery, utilizing its facilities, when necessary, to put apparatus in good condition for resale.

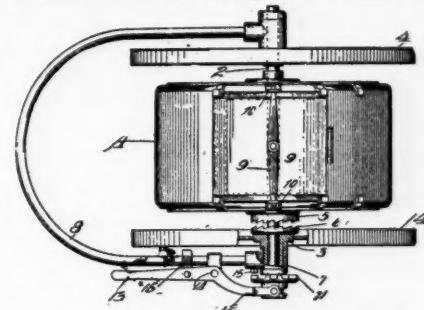
Mechanical Filter Plant.—R. E. Henry, of the Chicago office of the Jewel-Continental Filtration Co., is supervising the addition of a new filter bed the four now in operation at the Moline (Ill.) waterworks. The capacity of each bed is 1,000,000 gallons each daily. The work now being done will cost about \$3,000.

Hose Sleigh.—The Ahmeek (Mich.) Fire Department has received a new hose sleigh from the McHardy carriage works at Red Jacket. It is equipped with a large gong operated by the driver.

PATENT CLAIMS

977,679. COMBINED MIXER AND CARRIER. Frank D. Robbins, Oakland, Cal. Serial No. 548,181.

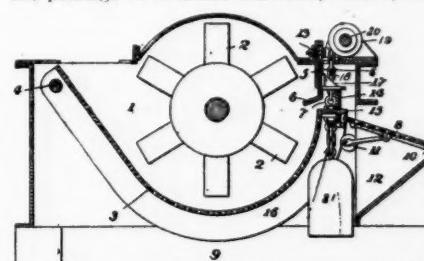
A portable concrete mixer and carrier comprising bearing wheels, a handle connected to said wheels, a shaft supported thereon and about which the handle is turnable in a vertical plane, a rotatable



drum on said shaft, clutch mechanism between the drum and wheels for locking the shaft at will to the wheels, to cause the drum to turn with said wheels, and means for coupling the handle to the shaft to enable the shaft to be turned by the handle and the drum to be tilted by the handle.

977,799. CRUSHING OR PULVERIZING MACHINE. Joseph L. Hiller, Mattapoisett, Mass. Serial No. 532,262.

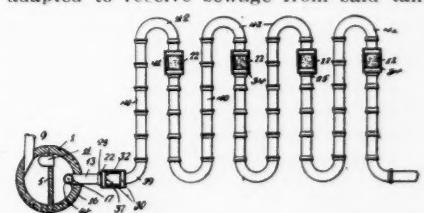
A crushing machine comprising a cylinder, a portion of which constitutes a grinding surface or cage having openings for the passage of crushed material, said cylin-



der having a transverse passage opening therefrom in rear of the grinding surface or cage, a wall of said passage being adjustable relatively to said cage whereby a passage of predetermined area may be maintained and the cage adjusted to compensate for wear of the hammers.

977,965. SEWAGE DISPOSAL BY FILTRATION AND AERATION. John B. Paul, Pittsburgh, Pa. Serial No. 547,532.

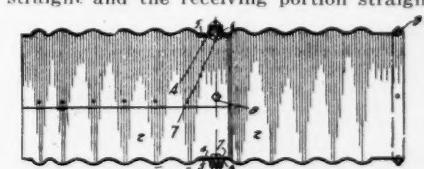
In the disposal of sewage by filtration, a septic tank, a plurality of filtering units in communication with said tank and adapted to receive sewage from said tank



to flow through said units by gravity, each unit comprising a well, a housing at the bottom of said well, a filtering cage in said housing, pipes connecting the housings of said units, and filtering material within said pipes.

977,945. CORRUGATED CULVERT. Ferdinand J. Feldt, Peoria, Ill. Serial No. 579,415.

In combination, culvert sections provided with intertelescoping meeting ends, the entering portion of one section formed straight and the receiving portion straight



with a circumferential corrugation at a point intermediate its length, a perforated ring seated in the corrugation in the receiving end, and bolts and nuts for securing the parts together, substantially as shown.

THE WEEK'S CONTRACT NEWS

Relating to Municipal and Public Work—Street Improvements—Paving, Road Making, Cleaning and Sprinkling—Sewerage, Water Supply and Public Lighting—Fire Equipment and Supplies—Bridges and Concrete Work—Sanitation, Garbage and Waste Disposal—Police, Parks and Miscellaneous—Proposals and Awards

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also corrections of any errors discovered.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREET IMPROVEMENTS				
Indiana.....	Covington.....	Dec. 23, 11 a.m.....	Improv. highway on line divid. Fountain and Montgomery Cos.	W. B. Gray, Aud. Fountain County
Missouri.....	St. Louis.....	Dec. 23, noon.....	Bldg. sewer in No. Harlem Joint Sewer Dist., 1st & 2d sec....	W. B. Dryden, Sec'y, Bd. P. Imp.
New York.....	St. George, S. I.	Dec. 23, noon.....	Furnishing 15gross-ton steam roller with equipment.....	George Cromwell, Boro. President.
Indiana.....	Indianapolis.....	Dec. 27, 10 a.m.....	Furn. 350 carlids or 14,000 yds. crushed stone for Co. roadways.	Albert Sahm, County Auditor.
Ohio.....	Akron.....	Dec. 27 11 a.m.....	Paving, curb, drain, etc., Akron-Hudson road, 6 sections....	C. L. Wirth, Clk., County Comrs.
Ohio.....	Ravenna.....	Dec. 27, noon.....	Pave, curb, drain, grade, etc., Freedom st., Main st., to City line	E. W. Martin, Village Clerk.
Florida.....	Fort Barrancas.....	Dec. 28, 11 a.m.....	Bldg. 450 sq. yds. macadam road with conc. curb and gutter.	Constructing Q.M., U.S.A.'my.
New York.....	Brooklyn.....	Dec. 28, 11 a.m.....	Furn. 10,000 cu. yds. paving sand; lay sidewalks, etc.....	A. E. Steers, Boro. President.
Nebraska.....	Lincoln.....	Dec. 28, 2 p.m.....	Grad. N. 14 st.; 16,000 yds. embank. and 7,000 yds. grading....	H. E. Wells, County Clerk.
Indiana.....	Muncie.....	Dec. 29, 10 a.m.....	Brick paving road in Center twp.; gravel Barwick & Newman roads, Harrison twp.....	J. E. Davis, County Auditor.
Indiana.....	Muncie.....	Dec. 29, 10 a.m.....	Furnishing six 3-wing steel road scrapers deliv. within 30 days, J. E. Davis, County Auditor.	
Indiana.....	Bluffton.....	Dec. 29, 1 p.m.....	Bldg. macadam rds. 5,280 and 8,120 ft. long; grav., 14,520 and 5,280 feet....	O. D. Garrett, County Auditor.
Kentucky.....	Louisville.....	Dec. 30, noon.....	Bldg. 2,700 ft., 33-in. conc sewer; excav., 5 to 30 ft. 600 yds con....	P. L. Atherton, Ch n., Sewer Comn.
Indiana.....	Huntington.....	Jan. 2.....	Grade, drain, gravel, Leon Wisner et al. road, 1 mi. long, twp 28	John W. Weaver, County Auditor.
Washington.....	Chehalis.....	Jan. 2.....	Bldg. big sewer system to care for eastern and southern sections	C. O. Gingrich Mayor.
Indiana.....	Williamsport.....	Jan. 2, 1 p.m.....	Constructing a gravel road in Steuben Township.....	R. L. Winks, County Auditor.
Ohio.....	Cleveland Hghts.....	Jan. 3, noon.....	Imp. Euclid Heights blvd.; Pease Eng. Co., Cleveland, Engrs.	H. H. Canfield, Village Clerk.
Ohio.....	Circleville.....	Jan. 3, noon.....	Brick paving Court st.; 41,883 sq. yds. on 6-in. concrete base, 2-in. sand cushion, cement or asphalt filler; 16,540 ft. straight and 940 ft. circular Berea curb; 1,670 ft. stone edging; 24,636 cu. yds. excav.; 528 ft. 24-in. and 615 ft. 18-in. sewer, 10 catch basins, 4 manholes, etc.	
Indiana.....	Vincennes.....	Jan. 3, 2 p.m.....	Bldg. 5,364 ft. and 2,442 ft. grav. rd., Vinc. twp., 7,565 ft. J'son	John W. Lowe, Dir. Pub. Serv.
Indiana.....	Martinsville.....	Jan. 3.....	Improv. highway 14,603 ft. long in Adams Township.....	John T. Scott, County Auditor.
Florida.....	St. Petersburg.....	Jan. 5, 7.30 p.m.....	Brick pav. 4000 lin.ft. laid flat, gran. curb, grad. etc., 2d st.	B. E. Thornburgh, County Auditor.
Ohio.....	Cincinnati.....	Jan. 6.....	Imp. Dick road in Crosby twp.; specification No. 32.....	W. F. Divine, City Clerk.
Kansas.....	Hutchinson.....	Jan. 6.....	Improv. 6 mi. of road including laying of 8,000 cu. yds. of clay or gumbo, excav. 5,000 cu. yds. of earth & build. 6 culverts.	Fred Drehs, Clk. County Comrs.
Missouri.....	St. Louis.....	Jan. 10.....	Constructing a municipal asphalt plant.....	H. R. Hamma, County Clerk.
				W. B. Dryden, Sec'y, Bd. Pub. Imp.
SEWERAGE				
Washington.....	Olympia.....	Dec. 23, 5. p. m.....	Bldg. sewer in north and south alley, block 14, Sylvester's plot	J. R. Dever, City Clerk.
Ohio.....	Akron.....	Dec. 27, noon.....	Bldg. sewer in 4' ts.; extend. Glenwood ave. sewer, 1,200 ft.	J. W. Gauthier, Dir. Pub. Service.
Iowa.....	Jefferson.....	Dec. 27.....	Making survey for sewer system for entire city, including duplicate maps, profiles, detail drawings, specifications, estimates reports.....	
Minnesota.....	St. Paul.....	Dec. 29, 2 p.m.....	Bldg. sewers on York and Richmond sts.....	B. S. McCullv, City Clerk.
Utah.....	Salt Lake City.....	Dec. 30.....	Bldg. pipe sewers in Sewer Ext. Nos. 286, 245, 280 and 285.	Board of Public Works.
Iowa.....	Sutherland.....	Dec. 31.....	Constructing 850 ft., 8-in. sewer with manholes in Pine st.	H. G. McMillan, Chm. Bd. P. Wks.
Ohio.....	Cleveland.....	Dec. 31, 11 a.m.....	Laying sewer pipe in Independence road.....	A. H. Schultz, City Clerk.
Arkansas.....	Fordyce.....	Jan. 1.....	Building 6-mi. san. sewer, mainly 8-in., 2 septic tanks, Dist. 1.	F. R. Lander, County Surveyor.
West Virginia.....	Mannington.....	Jan. 2.....	Laying 18-in. sewer from Burn Town Hill to Buffalo Creek....	W. J. Parkes, C.E., Pine Bluff.
Texas.....	Corsicana.....	Jan. 3, 6 p.m.....	Bldg. 13,200 ft. add. sewer main, av. depth 10 ft.; 10% check.	D. C. Griffin, City Recorder.
Wisconsin.....	Portage.....	Jan. 3.....	Completion of sewer work which has been interrupted.....	Walter Burgess, City Secretary.
California.....	Oroville.....	Jan. 3.....	Constructing sewer system and water works, cost \$68,000.	F. G. Clark, City Engineer.
Wyoming.....	Buffalo.....	Jan. 6, 8 p.m.....	Bldg. sewer system: 6,390 ft., 6-in.; 11,540 ft., 8-in.; 1910 ft., 10-in.; 4,340 ft., 12-in. and 700 ft., 15-in. pipe sewer, 51 manholes, 15 flush tanks; 22 lamp holes, house con., outlets, etc.	Board of Village Trustees.
California.....	Oroville.....	Jan. 7.....	Bldg. sewer system, as whole or labor and material separately; Olmsted & Gillelen, 604 Wright & Callender Building, Los Angeles, Engineers.....	E. L. Clarke, Engineer-in-Charge.
South Dakota.....	Aberdeen.....	Jan. 9.....	Bldg. 5,600 ft. 12, 15 and 20-in. pipe sewer ext., 14 manholes.	C. H. Reed, Jr., City Clerk.
Minnesota.....	Springfield.....	Jan. 9, 8 p.m.....	Bldg. 8-in. sewer on Brun st.	F. W. Raymond, City Auditor.
Oklahoma.....	Checotah.....	Jan. 16.....	Bldg. 11 miles 8, 10 and 12-in. san. sewer, disposal works, etc.	J. A. Eichmann, Village Recorder.
New York.....	Syracuse.....	Jan. 26.....	Bldg. Harbor brook intercepting sewer and imp. stream.	W. W. Southard, City Engineer.
Manitoba, Can.	Souris.....	Feb. 1.....	Furn. 31,000 ft. vit. sewer pipe, etc., spring and summer, 1911.	G. D. Holmes, Ch. Engr. Inter. S. Bd.
				C. R. Heath, Health Engineer.
WATER SUPPLY				
New Mexico....	Ft. Bayard.....	Dec. 24, 11 a.m.....	Furn. and install. complete 2 compound duplex steam pumps.	Capt. J. R. McAndrews, Con.Q.M.
Connecticut....	New London.....	Dec. 27, 11 a.m.....	Connecting tubular wells, bldg. pump house, furn. and install gasoline engine, and pump at Fort Terry N. Y.	Capt. F. T. Arnold, Con. Q.M.U.S.A
Ohio.....	Cincinnati.....	Dec. 27, noon.....	Furn. f.o.b. Cinc.: 48-in. c. i. bronze-mounted, hub-end, swing-check valve, test pres. 250 lbs. sq. in., consideration for quick delivery.....	J. J. Wenner, Clk., Dir. Pub. Serv.
Br. Col'b'a, Can.	Oak Bay.....	Dec. 27, noon.....	Furnishing supply of c. i. pipe and special castings.....	R. Fowler, Municipal Engineer.
Quebec, Can.....	Sherbrooke.....	Dec. 28, noon.....	Bldg. \$60,000 concrete dam and power house in Mazog riv., nr. Rock Forest for city; Ross & Holgate, Engrs., 80 St. Fran. Xavier st., Montreal.	
Ohio.....	Cleveland.....	Dec. 29, noon.....	Constr. 8-in. water main in Euclid Hghts blvd., Clvld. Hghts.	F. J. Griffiths, Sec'y. Treasurer.
British Col'b'a.....	Point Grey.....	Dec. 29.....	Furn. 35 miles 6 to 24-in. steel pipe, also special castings, and for construct. water supply system for municipality.....	H. H. Canfield, Beckman Building.
California.....	Corning.....	Jan. 1.....	Constructing w.w. and sewer system; cost \$68,800.....	Cleveland & Cameron, 506 Winch Bldg., Vancouver, B. C.
Oklahoma.....	Kiowa.....	Jan. 1.....	Extension of water and electric lighting plant.....	W. F. Luning, Red Bluff, Engr.
Washington.....	Spokane.....	Jan. 3, 2 p.m.....	Construct. compl. Lincoln Heights addition conc. reservoir....	George E. Pinkston, City Clerk.
Maryland.....	Ft. Smallwood....	Jan. 10.....	Bldg. pump house and install. pump. machinery at Fort.	J. C. Argall, Sec'y, Bd. Pub. Wks.
New York.....	Angola.....	Jan. 11, 8 p.m.....	Bldg. w.w. system; 850 tons (7.25 mi.) c.i. pipe, 50 fire hydrants 38 valves and boxes pumping station, inc. well, etc., 2 power pumps, 2 gas engines, steel standpipe, etc., furn. any or all, or for entire job. Witmer & Brown, Chapin Blk., Buffalo, Engrs..	Constr. Q.M., U.S. Army, Ft. Howard
Kentucky.....	Dayton.....	Jan. 16.....	Franchise to construct and operate w. w. system for 18 years.	George L. Peck, Clk. Village Trus.
Michigan.....	Grand Rapids....	Jan. 19, 8 p.m.....	Bldg. fireproof w.w. and filtration plant, one story, 178x178 ft., and repair shop, two stories, 40x66 ft.; cost \$400,000. Hering & Fuller, Engrs., 170 Broadway, New York City.....	S. A. Freshney, Gen. Mgr., Bd. P. W.
Manitoba, Can.	Souris.....	Feb. 1.....	Furn. 425 tons c. i. water pipe, specials, fire hydrants, gate valves and boxes, pig lead, etc., in spring and summer of 1911.....	J. W. Breakey, Sec'y-Treasurer.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
BRIDGES				
New Jersey....	Stone Harbor....	Dec. 24.....	Bldg. superstructure, operating machinery and equipment for railway and highway Scherzer rolling lift bridge, 60 ft. c. to c. 146,000 lbs. structural steel, 24,000 lbs. track, etc., 9,000 lbs. machinery and 390,000 lbs. c. i. and compos. in counterweight	Wm. H. Ford, Arcade Bldg., Phila., Pa.
Ohio.....	Defiance.....	Dec. 26.....	Bldg. permanent fill, Frances st. bridge.....	County Commissioner.
Ohio.....	Ravenna.....	Dec. 26, 11 a.m.	Bldg. kreidone floor 18x139 ft. 4 in. on Summit bridge.....	J. B. Shewell, County Auditor.
Oklahoma.....	Muskogee.....	Dec. 28, 6 p.m.	Erecting 10 concrete and 23 steel bridges.....	W. E. Looper, County Clerk.
Oregon.....	Portland.....	Dec. 30.....	Bldg. substructure of Broadway bridge, cost \$490,000, piers and approaches, \$60,000 additional; plans for superstructure being prepared.....	
Ohio.....	Ashland.....	Jan. 2, noon.....	Bldg. Race street arch.....	Mayor Simon and City Exec. Bd.
Iowa.....	Marshalltown.....	Jan. 4.....	Constructing 3 reinforced concrete bridges.....	Wm. Shidler, Chm. Co. Comrs.
Iowa.....	New Hampton.....	Jan. 5.....	Constructing several reinforced concrete bridges.....	E. B. Emes, Chm. Bd. County. Supv.
Indiana.....	Elwood & Sport.....	Jan. 5, noon.....	Bldg. \$18,000 steel bridge w/ rein. conc. piers and abuts.	Board of County Supervisors.
Arkansas.....	Piggott.....	Jan. 5.....	Erecting a bridge over Black river.....	John Spiker, Vincennes, Civil Engr.
South Dakota.....	Wessington Spgs.	Jan. 7.....	Furn. material and bldg. 8 comb. steel and concrete bridges.....	B. B. Holfield, Rector, Co. Judge.
Illinois.....	East St. Louis.....	Jan. 9.....	Bldg. 4 steel hwy. bridges, each 270 ft. long, cost \$45,000.....	Board of County Commissioners.
Nebraska.....	York.....	Jan. 10.....	Erec. all steel and wood. bridges ordered dur. 1911 by York Co.	H. D. Sexton, Pres Sanitary Dist.
Ohio.....	Cincinnati.....	Jan. 13, noon.....	Bldg. concrete bridge on Cooper ave.....	H. F. Chapin, County Clerk.
Virginia.....	Richmond.....	Feb. 1, 4 p.m.....	Plans, designs, detailed drawings, straightsheets, specifications and proposals for \$225,000 rein. concrete bridge over James ri.	Fred Drehs, Clk. Co. Comrs.
				Charles E. Bolling, City Engineer.
LIGHTING AND POWER				
Manitoba.....	Winnipeg.....	Dec. 23.....	Supplying one direct current electric generator, new or second hand, 50 k.w. with steam engine, direct con. or belt driven.....	Gus Peterson, Sec'y. Bd. Control.
Massachusetts... Boston.....	Boston.....	Dec. 24.....	Lighting sts. parks and alleys designated for 10 yrs., from Jan 31	Louis K. Rourke, Supt. of Streets.
New Jersey....	Perth Amboy.....	Jan. 15.....	Structural iron work on 200x200 ft., power house, 50 ft. high.	Public Service Electric Company.
FIRE EQUIPMENT				
California.....	Redondo Beach.	Dec. 26.....	Mounting chemical and hose apparatus now in city hall station on chassis with 50 h.p. six-cylinder engine.....	J. H. Cavanah, City Trustee.
California.....	Oakland.....	Dec. 28, 11 a.m.....	Bldg. and furn. 2-story frame fire engine house; \$5,000 bond.	Jas. W. Nelson, Sec'y, Bd. Pub. Wks.
Washington....	Tacoma.....	Jan. 16, 3 p.m.....	Furn. motor-driven comb. chemical engine and hose wagon; one motor-driven aerial ladder truck; also auto roaster to carry four persons.	L. W. Roys, Comr. Pub. Safety.
MISCELLANEOUS				
New York....	New York.....	Dec. 23.....	Repair of pier at E. 5th st., East River; Contract 1260	Calvin Tomkins, Dock Comr.
Missouri.....	St. Louis.....	Dec. 23.....	Sprinkling number of sterets.....	W. B. Dryden, Sec'y. Bd. Pub. Wks.
Indiana.....	Evansville.....	Dec. 24, 10 a.m.....	Sweeping and cleaning asphalt streets, one year.....	S. A. Bartholme, Clk. Bd. Pub. Wks.
New York....	St. George, S. I.	Dec. 27, noon.....	Furn. and install furnaces, steam boilers, etc. of Clifton destructor plans require high temperature refuse destructor of 2 units each of 45 tons capacity per 24 hours; \$30,000 security.	George Cromwell, Boro. President.
New York....	Brooklyn.....	Dec. 29.....	Bldg. public comfort station in McKinley Park.....	C. B. Stover, Pres. Bd. Pk. Comrs.
Nebraska.....	Fort Omaha.....	Dec. 30.....	Construct. a garbage crematory and crematory build. at this post	Capt. W. L. Clarke, Constr. Q. M.
Washington....	Spokane.....	Dec. 30, 2 p.m.....	Compleat. city's isolation hospital at once; cost \$30,000.....	Board of Public Works.
Indiana.....	Huntington.....	Dec. 31.....	Collecting garbage for one year, ashes to be separated.....	Ed. Smith, Street Commissioner.
Ohio.....	Toledo.....	Dec. 31, noon.....	Sale of street scrapings and mat. from catch bas., 5 or 10 yrs.	Fred Shane, Sec'y., Dir. Pub. Service.
Ontario, Can.	Sault Ste. Marie.	Jan. 2, noon.....	Bldg. roadbed and structures of 2 sections Man. & N. Shore Ry.	R. S. McCormick, Ch. Engr. Manitoulin and North Shore Railway.
Maryland....	Cumberland.....	Jan. 7.....	Erecting a City Hall.....	W. M. Eichelberger, Comr. S. & P. Pr.
Ohio.....	E. Youngstown.....	Jan. 8.....	Erect. a stone, brick and frame City Bldg.; A. F. Thompson, Arch.	P. J. Carney, Jr., Village Clerk.
Wisconsin....	Whitehall.....	Jan. 10, 2 p.m.....	Bldg. brick and stone addi. to Court house & jail, cell work, etc.	Jas. N. Hunter, Chm., C. H. Com.
Louisiana....	Lake Charles.....	Jan. 10.....	Erect. \$165,000 Court House, Fayrot & Livaudais, Archts.	
Pennsylvania....	Pottsville.....	Jan. 17, noon.....	New Orleans.....	Police Jury.
			Gen. contract for erect. bldg. for insane at Schuylkill Haven.	Charles T. Straughn, County Cont.

STREET IMPROVEMENTS

Tuscaloosa, Ala.—Council will consider ordinance for paving business section of city.

Alameda, Cal.—Council has decided to improve north end of High st.

Alhambra, Cal.—Board of Trustees has ordered grading, paving and graveling of Campbell ave., together with the construction of cement curbs and gutters.—A. A. Clapp, City Clerk.

Coalinga, Cal.—Contract will soon be let for paving 5th st.

Los Angeles, Cal.—Plans are being prepared by A. W. Tryce, City Engineer, for construction of Turnbull Canyon Road.

Redondo Beach, Cal.—Plans for improvement of Hermosa ave. in Redondo Beach have been adopted by City Trustees.

San Francisco, Cal.—Architect Willis Polk has drawn tentative plan for the improvement and beautification of Great Highway.

New Haven, Conn.—City will ask permission of General Assembly to issue \$350,000 bonds for extending and widening Orange st. and \$400,000 bonds for permanent paving, of which sum not more than \$100,000 is to be issued during one calendar year.

Seaford, Del.—The Sussex County Levy Court has made appropriation of \$4,000 for improvement of the county roads in Little Creek Hundred.

Jacksonville, Fla.—Board of Public Works is considering paving of portion of Cedar st.

Atlanta, Ga.—Council is considering widening of Marietta st. at cost of \$13,000.

Brunswick, Ga.—Council has adopted ordinance for paving portion of Gloucester st. with vit. brick.

Hartwell, Ga.—Hart County has defeated issuance of \$40,000 road and bridge bonds.—W. B. McMullan, County Clerk.

Elkhart, Ind.—City is having plans prepared for paving Oakland and California sts. with wooden blocks, asphalt or brick.—A. M. Smith, City Engineer.

Fort Wayne, Ind.—Board of Works will readvertise for bids for paving Leith st.

Huntington, Ind.—Cost of Huntington and Whitley County joint road on county line, including three miles in Huntington County, Union Township, and three miles in Wells County, Union Township, has been estimated at \$20,000.

Indianapolis, Ind.—Board of Public Works will soon ask for bids for improving five streets.

Laporte, Ind.—County Commissioners will soon ask for bids for paving three miles of streets.—C. E. Martin, County Engineer.

Marion, Ind.—County Commissioners will consider construction of 4,480 ft. of macadam road on township line.

Peru, Ind.—Board of Public Works will receive bids about Jan. 15 for six squares of vit. brick paving, concrete curb and gutter on two streets.—J. Horan, City Engineer.

Rensselaer, Ind.—Jasper County Commissioners will ask for new bids for construction of five stone roads.

Council Bluffs, Ia.—Council is considering resurfacing of 6th and 7th sts.

Eddyville, Ia.—Commercial Club is urging construction of proposed river to river road via Eddyville.—George Hartman, President.

Houma, La.—Board of Aldermen has authorized construction of cement sidewalks on two streets.

New Orleans, La.—Council Committee on Finance received no bids Dec. 12 for paving Cornwell pl.

Shreveport, La.—Supreme Court has declared null and void contracts let for street paving by last city administration, aggregating something over \$600,000; as this decision, which reverses judgment by District Judge T. F. Bell, holds that issue of bonds for paving purposes is effective, new administration will readvertise for bids.

Winnfield, La.—Winn County has voted to construct roads.

Baltimore, Md.—County Highway Commission is considering improvement of Charles st.—H. G. Shirley, Road Engineer.

Eikton, Md.—Cecil County Commissioners have sold \$15,000 road bonds to Hambleton & Co., Baltimore.

Columbia, Mo.—City will lay about 25,000 sq. yds. brick pavement. J. Russell Ellis, City Engineer.

Hastings, Neb.—Paving of St. Joe's ave. is being considered.

Gloucester, N. J.—County will need about \$21,000 for road repairs next year.

Montclair, N. J.—Board of Freeholders is considering elimination of all railroad grade crossings.

Newark, N. J.—Clinton Hill Improvement Association will urge widening of Commerce st. instead of Mechanic st. as proposed.

New Brunswick, N. J.—Board of Freeholders has instructed County Engineer to prepare plans for widening walks on Albany st. bridge.

Salem, N. J.—Specifications for improvement of the Salem-Woodstown road under State aid have been accepted by Salem County Board of Freeholders. Bids are being sought.

Binghamton, N. Y.—County Board of Supervisors is considering construction of improved highway between Afton, Chenango County and Deposit, Browne County, by way of Vallonia Springs and Sanford.

Syracuse, N. Y.—Five sections of new State and county roads, total of 20 miles, in this county are to be included in list of highways to be constructed by State next year.

Seneca Falls, N. Y.—Village Trustees have drawn up formal petition to State Highway Department, giving in detail plan for improving Cayuga, Fall, Ovid and a part of West Bayard st. in conjunction with State's improved road work.

Utica, N. Y.—Bids will be asked at once for improving Waterville-Deansboro, the

Sauquoit, the Augusta-Knoxboro, the North Brookfield-Waterville, the Clinton Village and the Deerfield-Trenton roads in county system and a strip about eight miles in length from end of the present macadam road west of Rome through Lee and Taberg, and on towards Camden; sections in Clayville Village and city of Rome and on the Utica-Deerfield road are also contemplated by Commission for work this year.

Genoa, O.—Village Council has passed ordinance providing for paving of streets and installation of sewers.

Toledo, O.—City Engineer George W. Tonson has estimated cost of repaving Cherry st. between Summit and Bancroft at \$45,220.

Goldstone, Ore.—Citizens will vote Dec. 24 on incorporation for purpose of obtaining grading of streets.

Fort Washington, Pa.—The State Highway Department will place two applications of pulp on Church road, near Fort Washington. Township of Springfield will have about \$10,000 available for road improvement next year.

Gwynedd, Pa.—In order to provide still further for improved roads, Board of Supervisors of Upper Gwynedd township has decided on bond issue of \$15,000.

Pittsburg, Pa.—Council is considering \$2,500 appropriation for board walks and steps in Tenth Ward, also grading, curbing and paving of Coleman st.

Scranton, Pa.—Plans and specifications have been drawn by Bureau of Engineering for ten additional miles of paving.

West Chester, Pa.—Council has passed an ordinance to abolish grade crossing at Adams st. over tracks of Central Division Railroad.

Granger, Tex.—Commissioners Court is considering election on \$150,000 bonds to macadamize highways.

Sherman, Tex.—City has sold \$8,000 street paving bonds to Harris Bank & Trust Co., Chicago.

Sour Lake, Tex.—Hardin County will vote Jan. 11 on \$100,000 bonds for better roads.

Montpelier, Vt.—House has passed bill appropriating \$50,000 annually for State highway work.

Alexandria, Va.—Council is considering resolution appropriating \$5,000 for street and sewer work during year.

Norfolk, Va.—Public Improvement Committee has approved \$1,500 appropriation for paving Woodside lane.

Norfolk, Va.—Board of Control will prepare estimates for paving Church st. with smooth material, extending Cove st. and May ave., improvement of Newton Creek and paving of Smith st.

Portsmouth, Va.—Bids have been rejected for proposed street paving; new bids will be asked.

Portsmouth, Va.—Board of Supervisors has rejected bids for hauling stone in Tanners Creek district; Geo. N. Meert, only bidder, 78c. per ton.

Portsmouth, Va.—Seventh Ward Local Board of Improvement will ask Council to authorize the installation of modern culverts at point in Chestnut st. where Gardner Creek passes under that thoroughfare.

Aberdeen, Wash.—Bids will soon be received for constructing road 30 ft. wide around Dabney Hill; cost, \$10,000.—F. F. Clark, City Clerk.

Chehalis, Wash.—Lewis County Commissioners are favorable to building of 3½ miles more of State aid road.

Seattle, Wash.—Board of Public Works has adopted plans and specifications for grading and curbing 34th ave. north.

Spokane, Wash.—Board of Public Works has asked for bids for paving portion of Wall st. with asphalt macadam; cost, about \$52,000.

Huntington, W. Va.—City Commissioners have authorized paving of Adams ave.; plans will be prepared at once.

Beloit, Wis.—City is about to let contract for 12,000 yds. of sandstone paving blocks.—Robt. Caldwell, City Engineer.

Milwaukee, Wis.—Forty-three contracts for sidewalk, sewer, street and alley work, amounting to about \$100,000, will be awarded to new bidders by Department of Public Works next year as result of opinion of Special Assistant City Attorney Clifton Williams to Commissioner Briggs.

Wausau, Wis.—Macadamized road through state from Ashland to Milwaukee is project which Julius Thielman, Merrill; R. C. Thielman Tomahawk, and others residing in the Wisconsin river valley have started.

Vancouver, B. C., Can.—Provinces of Western Canada, especially British Columbia, Alberta, Saskatchewan and Manitoba, have been asked by Hon. Thomas Taylor, Minister of Public Works, British Columbia, to co-operate with latter province in construction of trunk line highway from Winnipeg to Vancouver. British Columbia already has plans laid for construction and completion of its share of road. Alberta is

well along, and the matter has been taken up in other provinces mentioned.

Toronto, Ont., Can.—The City Engineer will report on the probable cost of widening Bloor st. west from Dundas st. to High Park.

CONTRACTS AWARDED

Los Angeles, Cal.—Improving 11th st. with sidewalks, to P. Helm, 10¾c.; Sloat st., Malabar st. to Brooklyn ave., to P. Helm, \$3.24 per lin. ft. for grading and graveling complete, 33½c. per lin. ft. for cement curb, 14c. per sq. ft. for cement gutter, 30c. per sq. ft. for vit. block gutter; other bidders: F. H. Potts, \$3.65, 37½c., 17½c. and 35c.; Oswald & Moir, \$3.49, 32c., 15c. and 31c.; H. H. Curtis, \$5, 35c., 15c. and 30c.; Echandia st., to Paul H. Ehlers, 29.7c. per lin. ft. for cement curb, 9.7c. per sq. ft. for sidewalk; other bidders: John Balch & Co., 32c. and 9¾c.; P. Helm, 32c. and 10¼c.; F. H. Potts, 40c. and 11c.; H. V. Gentry, 33c. and 10½c.; Oswald & Moir, 30c. and 12c.; improving Malabar st., to G. R. Curtis, \$1.85 for grading and graveling complete, and 14c. per sq. ft. for cement gutter; other bidders: P. Helm, \$1.85 and 14c.; Jones Bros., \$2.60 and 15c.; Withers & Crites, \$2 and 14c.; P. H. Potts, \$2.25 and 17½c.; Oswald & Moir, \$2.30 and 32c.; George H. Oswald, \$2.25 and 14c.; Mountain View ave., to Paul H. Ehlers, 10.9c. per sq. ft. for sidewalk, and H. V. Gentry bid 11½c.

Pomona, Cal.—Paving portion of 2d st., to Fairchild-Gilmore-Wilton Co., 617 Pacific st., Los Angeles: Asphalt paving per sq. ft., 9c.; culverts 3 ft., including manholes, per lin. ft., \$4.50; culverts 2 ft., including manholes, per lin. ft., \$3; concrete retaining wall per cu. ft., 50c. for work complete.

Riverside, Cal.—To Johnson-Shea Co., 5th and Market sts., for improvement of Locust st., \$11,998; other bidders were: Newton Construction Co., \$12,341; Shultz-Tucker Co., \$12,348; Star Cement Co., \$12,969.

Waterbury, Conn.—Building 13,300 ft. of road, to Jenks & Goeppe Co., Wilton, \$14,900 for both grading and filling; telford paving, 75c. per lin. ft.; rubble drain, 75c. per lin. ft.; cobble gutters, 65c. per lin. ft.

Bloomfield, Ind.—To Samuel Hays, Worthington, for construction of macadam road, \$5,010.

Crawfordsville, Ind.—Construction of gravel road, Montgomery County, to G. B. Lynch, Darlington, \$7,699.

Greencastle, Ind.—Building gravel road in Jackson and Franklin Townships, to A. G. Day, city, \$6,500.

Kokomo, Ind.—Building Vocus road, to Nees & Co., Frankfort, \$4,027; Rhinehart road, to W. F. Smith & Co., Rensselaer, \$4,770.

Liberty, Ind.—To Thomas H. Gibbons, College Corner, O., for the construction of gravel road in Center Township, \$2,810.

Peru, Ind.—Building gravel roads in Washington Township, to H. C. Madlin & Co., \$5,979 and \$5,450; to Peck & Taher, \$12,809.—Charles Griswold, County Auditor.

Scottsburg, Ind.—By Commissioners of Scott County, for the construction of gravel roads in Lexington Township: To Robt. W. Peacock, Austin, \$17,304; to C. C. James, Lexington, \$4,701, and to J. H. Cortner, Scottsburg, \$3,372.

Wabash, Ind.—Building gravel roads in Paw Paw and Chester Townships, to Geo. M. Sewell, Laketon, \$5,380, and to A. T. Hipkiss, Wabash, \$18,230.

Fort Scott, Kan.—Paving South Main st., to Midland Construction Co., \$1.43 per sq. yd.

Leavenworth, Kan.—To A. M. Geiger for supplying city with rock during coming year, \$1.29 per cu. yd. delivered wherever needed.

New Orleans, La.—By Board of Port Commissioners, for paving on river front from Thalia to Bienville st. with small granite blocks on concrete foundation, to Grasser Contracting Co., city, \$56,457.

Las Cruces, N. M.—Asphalting Main st., to O. H. Brown, Las Cruces.

Buffalo, N. Y.—To German Rock Asphalt and Concrete Co., for paving Rano st., 30 ft. wide, from Riverside ave., to north end of street with standard asphalt.

Syracuse, N. Y.—Grading Durston ave., to Jas. Swift, \$4,155.

Linden Heights, O.—To R. Deckard & Son, Bowling Green, for construction of approximately 190,000 sq. ft. of flagstone sidewalks, 12¾c. per sq. ft.

Chester, Pa.—Paving 3d st. with wood block to Edwin H. Vare, Philadelphia.

Wilkes-Barre, Pa.—Paving Division st. to Warner Quintan Co., \$2.26 per sq. yd.

Memphis, Tenn.—To E. J. Wetterstrom for about 12,000 yds. of creosoted wood block paving; blocks of Ayer & Lord Tie Co., Railway Exchange Bldg., Chicago, will be used.

Austin, Tex.—To J. Brueggermann, Austin, for 45,000 sq. ft. of sidewalk, 12c. per sq. ft., and 3,900 lin. ft. of curbing, 20c. per lin. ft., on Congress ave.

Dallas, Tex.—Paving portion of Main st. with bitulithic to Texas Bitulithic Co., Western Bank & Trust Bldg.; about \$30,000.

Dallas, Tex.—Paving Houston st., Elm to Main st., to Texas Bitulithic Co., \$2.70 per sq. yd.

Norfolk, Va.—Paving parts of Manteo st., Westover ave. and Langley road with asphalt, to Perry W. Rutn & Co., \$1.89 per sq. yd.; amount of contract will be \$10,713; curbing on same streets, to F. J. McGuire, 46c. per lin. ft.

Seattle, Wash.—Planking west side of Western ave. to J. A. Bailey, 4100 25th ave., N. W., \$2,715; grading N. and W. 77th st. to J. H. Culien & Co., 6020 3d ave., N. W., \$8,479.50.

Seattle, Wash.—Grading 39th ave. N., to Agassiz & Hadley, \$22,280.

Prince Rupert, B. C., Can.—To Westholme Lumber Co., for grading 2d ave., \$100,000.

BIDS RECEIVED

Los Angeles, Cal.—Improving Winter st., Evergreen ave. to Mott st., Jones Bros., \$2.60 per lin. ft. for grading and graveling complete, 15c. per sq. ft. for vit. block gutter; P. Helm, \$1.85 and 14c. per sq. ft. for cement gutters; Withers & Crites, \$1.95 and 14c. per sq. ft. for cement gutter; F. H. Potts, \$2.25 and 17½c.; Oswald & Moir, \$2.30 and 32c.; George H. Oswald, \$2.25 and 15c.; H. H. Curtis, \$1.90 and 14c.; George H. Curtis, \$1.85 and 14c.; Boulder st., Jones Bros., \$2.10 per lin. ft. for grading and graveling complete, and 15c. per sq. ft. for cement gutter; P. Helm, \$1.85 and 14c.; F. H. Potts, \$2 and 17½c.; Oswald & Moir, \$2.20 and 32c.; George H. Oswald, \$2.25 and 15c.; H. H. Curtis, \$1.75 and 15c.; Fairmount st., from Evergreen ave. to Mott st., P. Helm, \$1.85 per lin. ft. for grading and graveling complete, and 14c. per sq. ft. for cement gutters; Jones Bros., \$2.50 and 15c.; Withers & Crites, \$1.90 and 14c.; F. H. Potts, \$2.25 and 17½c.; Oswald & Moir, \$2.30 and 32c.; George H. Oswald, \$2.25 and 14c.; H. H. Curtis, \$1.90 and 14c.

San Francisco, Cal.—Regrade work and bridge construction on Beale st., Foster & Vogt, 82½c. per yd. for removing the 67,642 cu. yds. of earth included in contract and \$31,997 for constructing the bridge; Healy-Tibbets Co., 78c. per yd. for removing the dirt and \$38,764 for building bridge.—Marsden Manson, City Engineer.

Hartford, Conn.—Construction of State roads: Town of Portland, 2,200 lin. ft. graded road, 14-ft. roadway, including heavy cutting and rock blasting; B. D. Pierce, Jr., Co., Bridgeport, \$14,000 for the entire grading, 75c. per lin. ft. for telford, 90c. per lin. ft. for rubble drain; William Maloney, West Hartford, \$9,900, 95c., \$1; Roger Kennedy, Middletown, \$11,999, 60c., 12½; Sternberg & Cadwell, West Hartford, \$7,900, 75c., \$1; F. Arrigoni & Bro., Middletown, submitted bid of \$10,335 for straight grading; Town of Norwich, 2,250 lin. ft. graded road, 14-ft. roadway, including heavy grading and rock blasting; Piereson Engineering and Construction Co., Bristol, \$4.50 per lin. ft. for grading, \$5.25 for telford, \$1.25 for rubble drain, 90c. per sq. yd. for cobble gutters; Ahern Bros., Norwich, \$3.17, \$3.82, \$1, 75c.; Board of Selectmen, Norwich, \$2.35, \$2.90, \$1, 60c.; Edward McKnight, Westerly, R. I., \$4.87, \$5.37, \$1, 60c.; C. A. Rossi, Torrington, \$2.44, \$3.15, \$1.50, 70c.; A. D. Bridge's Sons, Inc., Hazardville, \$3.57, \$4.17, \$1, 60c.; Tony Carboni, Norwich, \$2.70, \$3.21, \$1, 75c.; City of Waterbury, 13,268 lin. ft. graded or gravel road, including heavy grading, (a) lump sum grading, (b) gravel, (c) telford, (d) rubble drain, (e) cobble gutters; Edward McManus, Waterbury, (a) \$35,520, (b) \$39,900, (c) \$1,900, (d) \$1.25, (e) 65c.; Pierson Engineering and Construction Co., Bristol, (a) \$21,697, (b) \$28,950, (c) 65c., (d) \$1, (e) 75c.; O. T. Benedict, Pittsfield, Mass., (a) \$23,995, (b) \$27,995, (c) 95c., (d) 95c., (e) 75c.; William Maloney, West Hartford, (a) \$14,850, (b) 95c., (c) 75c., (d) \$1, (e) 70c.; Ahern Bros., Norwich, (a) \$19,043, (b) \$24,547, (c) 60c., (d) 95c., (e) 75c.; Sternberg & Cadwell, West Hartford, \$20,900, (c) 75c., (d) \$1, (e) 75c.; F. Arrigoni & Bro., Middletown, (a) \$25,881, (b) \$31,507, (c) 60c., (d) 60c., (e) 65c.; Jenks & Goeppe, Wilton, (a) \$14,900, (b) \$21,900, (c) 75c., (d) 75c., (e) 60c.; John de Michiel & Bro., Torrington, (a) \$28,000, (b) \$31,000, (c) 90c., (d) \$1, (e) 75c.; C. W. Tryon, Meriden, (a) \$21,575, (b) \$25,700, (c) 45c., (d) \$1.15; Joseph Mascetti & Co., Torrington, (a) \$19,000, (b) \$22,500, (c) 65c., (d) 65c., (e) 60c.; A. Vita & Co., Thompson, (a) \$21,402, (b) \$22,565, (c) 78c., (d) \$1.25, (e) 75c.; J. S. Barbara, Waterbury, (a) \$24,690, (b) \$30,765, (c) \$1.65, (d) \$2, (e) 60c.; B. D. Pierce, Jr., Co., Bridgeport, (a) \$16,945, (b) 65c. per lin. ft. extra for gravel, (c) 80c., (d) \$1, (e) 75c.

Washington, D. C.—Grading Kearney st., N. W., W. F. Brenizer, 35c. per cu. yd.; G. B. Mullen, 33¾c.; George Hyman, 22c.; Phillip Palavano, 42c.; Harper & Voight, 28.5c.; E. G. Gummell, 21c.

Galveston, Tex.—Constructing concrete sidewalk and curbing on Seawall blvd., from Ave. H to 16th st.: (a) 5,400 lin. ft. 10-in. concrete curb, (b) 5,400 lin. ft. 18-in. concrete curb, price given per cu. ft., (c) 9,300 sq. yds. concrete sidewalks, price given per sq. yd., and (d) 300 ft. vit. drain pipe, price given per ft.: Kelsi & Vautrin, (a) and (b), \$1c., (c) \$1.18, (d) 25c.; L. H. Lyon, Salina, Kan., (a) and (b) 50c., (c) \$1.26, (d) 25c., and Edw. F. Drewea, (a) and (b) 43c., (c) \$1.19, and (d) 20c.

Seattle, Wash.—Improvement of N. and W. 77th st. and 1st ave. N. W., grading and curbing; pre. estimated cost, \$9,550; Sloane Bros., \$10,524.50; J. H. Cullen & Co., \$9,497.50; Mougin & Price, \$10,241; Macquard & Moore, \$12,545; west side of Western ave., planking, appropriation \$3,450; J. A. Bailey, \$3,107; Rufus Burt, \$2,993.36; Will Kopta, \$3,009; J. G. Engstrom, \$2,715; Hanson & Co., \$2,934; J. A. Zinkan, \$3,116.20; E. Johnson, \$3,077; J. L. Stanley, \$3,278; D. C. McCarty, \$3,220; J. Ruthe, \$3,554.50.

SEWERAGE

Little Rock, Ark.—Establishment of two sewer districts is being considered. J. K. Riffel is interested.

East Lake, Ga.—City has postponed election on \$12,000 bonds for sewer construction.—Thos. B. Paine, Mayor.

Jasper, Ind.—Engineer E. E. Watts, 105 S. Main st., Princeton, has submitted plans for a sewerage system; cost \$25,000.

Flint, Mich.—City Engineer Terry will prepare plans and specifications for construction of a sewer on W. 2d st.

St. Cloud, Minn.—City Engineer S. S. Chute has completed the plans and specifications for proposed sewer system No. 5.

Willmar, Minn.—Engineer J. A. Rowatt has prepared plans for sewer system; bonds will be issued.

New Brunswick, N. J.—Order from State Board of Health directing city to cease polluting the Raritan River by emptying sewage therein on or before July 1, 1911, has been transmitted by Mayor John J. Morrison to Council.

Nutley, N. J.—Town Council has appropriated \$1,200 to hire engineers to make map of town with a view to ascertaining cost of laying street sewers and getting at methods of collection and disposal.

Watertown, N. Y.—Plans have been ordered submitted to State Health Department for approval for the sanitary sewer for park building lots east of the park entrance on State st. for Academy alley, Moore ave., Grand ave., Oxford ave. and park entrance.

Tarboro, N. C.—City will construct sewerage system.—Gilbert G. White, Durham, Engineer.

Genoa, O.—Council has passed ordinance for installation of sewers.

Lorain, O.—City Engineer C. M. Osborn is preparing plans for sewers on Broadway.

Albany, Ore.—Citizens have voted \$40,000 bonds for additional sewers.

Goldstone, Ore.—Citizens will vote Dec. 24 on incorporation for purpose of obtaining sewer system.

Lebanon, Ore.—Citizens have voted \$70,000 bonds for construction of sewer system.

Kingtree, S. C.—City is considering construction of sewer system; J. Newton Johnson, City Engineer, Florence, will make surveys and estimate cost.

Aberdeen, S. D.—Citizens will vote on \$100,000 bonds to extend sewer system.

Corpus Christi, Tex.—City is planning to begin work as soon as possible on construction of sewer system in downtown portion of city.

Dallas, Tex.—Bids will be asked by the City Secretary for constructing 6-in. sanitary sewers on portions of Haskell and Beekley aves.

Dallas, Tex.—City Commission will ask for bids for installing 6-in. sanitary sewer on Beakon st. and 6-in. sanitary sewer laterals on North Akaid st.

Honey Grove, Tex.—Council has granted to Messrs. Whatley and Duff, Greenville, franchise to construct, operate and maintain sewer system in this city.

Pecos, Tex.—City has had plans and specifications prepared by O'Neil Engineering Co., Dallas, for sewer system; date of election on \$25,000 bonds has been postponed 30 days.

Alexandria, Va.—Council is considering resolution appropriating \$5,000 for sewer and street work during year.

Smithfield, Va.—Citizens will vote Feb. 21 on \$55,000 bonds for sewerage and electric lights.

Hull, Que., Can.—A. Earley has been instructed to prepare estimates of cost of a sewerage system for Wrightville and Walkerville, in Hull.

Winnipeg, Man., Can.—Tenders for immediate construction of sewers on Carter ave. from Wolf to Cameron and on Wolf ave. from Carter to Nairn, and for construction

of water mains on Salter st., on Ellice ave. from Ingersoll to Garfield st., and on Heien from Rathgar to Merrion, will be called at once.

CONTRACTS AWARDED

Carlinville, Ill.—Sewer on the east end of First South st., to the Castle Improvement Co., city.

Peru, Ind.—To Michael Burke, for installation of 1,700 ft. of 12-in. vit. pipe sewers.

Boston, Mass.—To Luke D. Mullen, for building pipe sewers and drains in Dyer and Ufford sts., Dorchester, \$2,128.95. Other bidders: Murphy & Dolan, \$2,242.01; Daniel De Pietro, \$2,443.56; George Regan, \$2,580.71; D. M. Biggs & Co., \$2,714.00; John McCourt & Co., \$2,940.46; J. B. O'Rourke & Co., \$3,080.11. To Daniel De Pietro, for building pipe sewer in Mallon road, Dorchester, \$782.92; other bidders, William J. Rafferty & Co., \$956.30; George J. Regan, \$962.70; John E. Gill, \$979.36; D. M. Biggs & Co., \$1,021.85; John McCourt & Co., \$1,121.02; R. Cartullo, \$1,405.03. To Luke D. Mullen, for building pipe sewer and drains in Norfolk st., Dorchester, \$733.84; other bidders, George Regan, \$919.87; J. B. O'Rourke & Co., \$1,122.54; Commonwealth Construction Co., \$1,126.09; John McCourt & Co., \$1,136.28; R. Cartullo, \$1,299.75. To same, for building pipe sewer in Arbutus st., Dorchester: Luke D. Muller, \$744.97; other bidders, George Regan, \$779.89; Murphy & Dolan, \$780.41; Daniel De Pietro, \$838.72; J. B. O'Rourke & Co., \$853.01; John McCourt & Co., \$1,125.62; West Roxbury Trap Rock Co., for building pipe sewers and drains in Willow st., W. Roxbury, \$3,754.80; Anthony Cefalo, \$4,025.25.

Kalamazoo, Mich.—To Johnson & Van Dyke, city, for construction of Fulford st. sewer, \$14,919.50, with \$25 additional for each manhole; cost of engineering and superintendence, amounting to about \$600, is to be paid by city; only other bidder was Richard Heystek, \$16,412.50.

Windsor, Mo.—Construction of a sewer system from plans of Rollins & Westover, Kansas City, to T. C. Brooks & Sons, Jackson, Mich., for \$8,625; other bidders: Cooke Gregory Eng. Co., Joplin, \$10,200; T. C. Brooks & Sons, Jackson, Mich., \$8,625; Bash & Gray, Joplin, \$10,213; Williams & Samples, Kansas City, \$10,125; N. S. Sherman M. & I. Wks., Oklahoma City, Okla., \$9,725; Katz-Craig Contracting Co., Omaha, Neb., \$10,664; W. F. Hall, Clinton, \$10,512; W. F. Boyd, Kansas City, \$11,086; J. W. Smith & Son, Webb City, \$11,901, and Will F. Plummer Co., Springfield, \$10,540; Lewis & Kitchen, Kansas City, for septic tanks, \$2,-

565.

Atlantic City, N. J.—Construction of proposed drainage conduit, to W. G. Root, 20 Broad st., New York, \$831,000.

Elizabeth, N. J.—To Louis Jacques, city, for construction of sewer in Erie ave., \$1,003.

Syracuse, N. Y.—Laying 24-in. pipe sewer in Glenwood ave., to C. T. Hookway, \$2,315; 15-in. pipe sewer in Herbst ave., to Samuel Bonn, \$748.90; 12-in. pipe in Chemung st., to same, \$726.

Charlotte, N. C.—To W. S. Stancill, to renovate and improve two septic tanks, \$12,510.—Jas. Firth, City Engineer.

Warren, O.—To Dennis & Smith for construction of sewer system in northwestern portion of city, \$16,231.

Yukon, Okla.—To N. S. Sherman, Jr., N. S. Sherman Machine and Iron Works, Oklahoma City, Okla., for construction of sewer system and sewage plant; cost about \$40,000.

Richmond, Va.—To Javi Perkins, to construct sewer in Davis ave. and other streets, \$5,553.65, and to J. C. Cheatwood, to construct sewer in Leigh st., \$6,089.12.

Seattle, Wash.—Constructing sewers in E. Mercer st. and 33d ave. N., to T. I. Peterson, \$2,937.75.

BIDS RECEIVED

Los Angeles, Cal.—Constructing storm sewers, (a) Pasadena ave. to Ave. 35, (b) Pasadena ave. to Ave. 37, (c) Pasadena ave. to Ave. 43, (d) Pasadena ave. to Woodside drive, (e) culvert and sewer in Arroyo del Col: Barber Asphalt Paving Co., (a) \$5,407, (b) \$13,979, (c) \$3,168, (d) \$13,315, (e) \$2,414; Fairchild, Gilmore, Wilton Co., (a) \$5,687, (b) \$14,700, (c) \$3,785, (d) \$3,088, (e) \$14,152.

Santa Paula, Cal.—Constructing sewer system to include 34,532 lin. ft. of 6-in., 9,812 ft. 8-in., 3,331 ft. 10-in., 1,775 ft. 12-in., 2,750 ft. 15-in. pipe, 38 brick flush tanks, 77 brick manholes, 1 septic tank, etc., (a) vit. pipe sewer, (b) concrete pipe sewer: Magenovich & Gillespie, (a) \$28,983, (b) \$26,544; Slocum & Pucicich, (a) \$31,038; Chutuk & Cleveland, (a) \$34,444; Register & Hendricks, (a) \$36,925; Engineering and Contracting Co., (a) \$37,357, (b) \$33,648; A. S. Bent, (a) \$37,911, (b) \$35,920; Peter Gebvich, (a) \$39,800; Westlake Construction

Co., (a) \$42,605, (b) \$41,258; E. R. Werdin & Co., (a) \$43,506; George Wujich, (a) \$48,-164; bidders all of Los Angeles.

Louisville, Ky.—Construction of a sewer known as "8th and St. Catherine St. Sewers," Contract No. 75, consisting of about 3,250 ft. of 36, 42 and 48-in. concrete sewer, including about 1,150 cu. yds. of concrete; excavation 12 ft. to 18 ft. deep; Guild & Co., Chattanooga, Tenn., lowest bidders, \$44,404.

WATER SUPPLY

Gadsden, Ala.—General Contracting and Construction Co., Atlanta, has surrendered contract on Gadsden municipal water works plant; contract will be completed by either Fidelity and Deposit Co. of Maryland, Baltimore, or City of Gadsden and cost charged to the Fidelity and Deposit Co.

Alameda, Cal.—People's Water Co., F. C. Havens, President, will consider installation of larger water mains in Grove st.

Aituras, Cal.—Citizens will vote in January on \$33,000 bonds for water works.

Imperial, Cal.—Installation of \$50,000 water works system has been ordered; bonds issued.

Lordsburg, Cal.—Issuance of bonds for municipal water works is being considered.

Oceanside, Cal.—City has sold \$20,000 bonds for water works improvements.

Pasadena, Cal.—Finance Committee has been authorized to expend \$250 on behalf of city in securing data regarding a municipal water system.

Tehachapi, Cal.—Town is considering construction of pumping plant.

Walnut Creek, Cal.—Walnut Creek Water Co. has been incorporated to install modern water system.

Denver, Col.—National Board of Fire Underwriters has recommended replacing of Ashland ave. pumping station with fire-proof building, remodeling of Capitol Hill pumping station, duplicating of steam piping in both these stations and discharge piping in Ashland ave. station; adopting of meter system, strengthening of distribution system and installing of 180 hydrants in congested value district.

Waterbury, Conn.—Board of Public Works has recommended to Aldermen purchase of site at corner of Hill st. and Greenwood ave. for purpose of establishing a high service reservoir in connection with permanent pumping station.

Pensacola, Fla.—Council has adopted plans of Water Committee for extension of water mains.

Columbus, Ga.—By decision of Supreme Court of United States city has won right to build own water works plant.

Dublin, Ga.—Citizens have voted \$30,000 bonds for improving water and electric light plants and paving streets.

Macon, Ga.—Citizens will vote March 18 on \$1,000,000 bonds; \$699,000 will be used for purchase of water works and remainder for improvements.

Chicago, Ill.—Following improvements to water works system are being urged: Building of additional water tunnel at cost of \$2,000,000; installation of new equipment, including pumps, mains, etc.; establishment of high-pressure system in downtown district and extension of meter system.

Morton, Ill.—City is considering drilling of additional well and construction of pump house.

Pana, Ill.—City has selected Engineer R. L. McColman, Decatur, to make survey for proposed 50,000,000-gal. reservoir.

South Bend, Ind.—Board of Water Works Trustees has decided to lay water mains on Duball ave.

Mound City, Kan.—Preliminary plans are being prepared by J. S. Worley & Co., Engineers, Reliance Bldg., Kansas City, Mo., for proposed water works system.

Baltimore, Md.—Taylor Land Co., Eastern ave., is receiving bids through Reding & Howard, Hoffman Bldg., 11 E. Lexington st., for installation of water supply system and erection of standpipe.

Lynn, Mass.—Public Water Board will ask Council to provide for issuance of \$250,-000 bond order to pay for the installation of a chemical mechanical filtration system for purification of local water supply.

Northampton, Mass.—Engineer Goodnough, of State Board of Health, will confer with Water Commissioners in regard to increased supply.

Big Rapids, Mich.—W. G. Fargo, Commonwealth Bldg., Jackson, is preparing preliminary plans for water works; cost about \$30,000.

Saginaw, Mich.—Citizens will vote after June 28, 1911, on proposed water bond issue.

North Mankato, Minn.—Plans have been prepared by Engineer Oscar Claussen, St. Paul, for proposed \$20,000 water system.

Walker, Minn.—State Board of Control is having plans prepared by Oscar Claussen, Engineer, St. Paul, for a 40,000-gal. tank, tower and pipe line for State Sanitarium.

Libby, Mont.—Plans are being prepared by Villaro-Barnum Engineering Co., Great Falls, for water works system for Libby Water Works, Electric Light and Power Co.

Cortland, Neb.—Installation of water works and electric light system is being considered.

Giltner, Neb.—Citizens have voted bonds for water works.

Gordon, Neb.—Plans are being prepared by Merritt & Mead, Chadron, Consulting Engineer, for construction of proposed water works.

Bridgeton, N. J.—Consulting Engineer Clyde Fotts, New York City, has submitted plans for proposed water plant, including new pumping station and complete filtration plant, capacity 3,000,000 to 5,000,000 gals. per day.

Fort Ann, N. Y.—Village is considering construction of reservoir.

New York, N. Y.—Mayor Gaynor has withdrawn advertisement for bids on contract for construction of \$25,000,000 deep rock tunnel under Manhattan for distribution of water from new Catskill system.—John A. Bensel, President Board of Water Supply.

Silver Springs, N. Y.—Combined pumping and electric light plant will be installed in this place; work will be commenced in the spring.—J. E. Nash, President.

Whitehall, N. Y.—Village will consider installation of better supply of water.

Mandan, N. D.—Plans for proposed installation of water works have been prepared by Burns & McDonnell, Kansas City, and Oscar Claussen, St. Paul.

Jonesboro, N. C.—City will construct water works.

Burton, O.—Bids will soon be asked for extension of water mains.

Toledo, O.—William G. Clark will be employed as Consulting Engineer for water filtration plant for another year from March 23, 1911.

Arapaho, Okla.—City has inaugurated plans to build water system.

Francis, Okla.—Citizens will again vote on issuance of water works bonds.

Lamont, Okla.—Citizens have voted \$17,000 bonds for erection of municipal water works plant.

Manchester, Okla.—Town is considering installation of water works.

Muskogee, Okla.—Council has instructed the Water Superintendent to purchase four carloads of pipe.

Falls City, Ore.—Citizens have voted \$30,000 bonds to install water system.

Goldstone, Ore.—Citizens will vote Dec. 24 on incorporation for purpose of obtaining water system.

Aiken, S. C.—Public Works Commission will require 3½ miles of 18-in. wood or stone, spiral united or lightweight c.-l. gravity pipe; two 500 or 700 gals. per minute triplex pumps operated by Corliss engine, and about 14-in. or 16-in. c.-l. pipe of four units pressure.—Harry Sudlow, Box 415, Engineer in Charge.

Kingtree, S. C.—City is considering construction of water works; J. Newton Johnson, City Engineer, Florence, will make surveys and estimate cost.

Denison, Tex.—Superintendent W. W. Ferry, of Water Department, has made following estimates of cost of connecting Randall reservoir with city mains: Pipe line—\$25,250; fittings, \$500; valves and hydrants, \$1,500; laying complete, lead, jute and labor, \$9,000; pump station: Machinery, \$12,000; setting boilers, \$1,200; setting pump, \$1,000; building, \$200. Fuel storage: Pipe line 10,000 ft. of 2½-in., \$1,500; one oil tank, \$1,000; coal shed, \$500; miscellaneous charges, \$1,000; total cost, \$56,450.

El Paso, Tex.—Council is considering reconstruction of present Mesa water pumping station building.

Fort Worth, Tex.—Citizens will vote in near future on \$2,000,000 bonds to erect reservoir large enough to compound two-years' supply for city three times as large as Fort Worth and for other improvements.

Greenville, Tex.—Citizens have voted \$50,000 bonds to build another large reservoir.

Princeton, Tex.—Princeton Water Works Co. desires bids for deep well, work to be done immediately.—C. A. Wilson, Secretary.

Sherman, Tex.—City has sold \$12,000 bonds for improvement of water works plant to Harris Bank and Trust Co., Chicago.

Martinsville, Va.—Citizens have voted \$35,000 bonds for improvements to water system and electric light plant.

Seattle, Wash.—Board of Public Works has rejected all bids for pumps, attachments and other material; bidders were as follows: M. Taylor, \$2,045; W. Greenberg Wrecking Co., \$2,850.50; Miller Machinery Co., \$2,050.

Seattle, Wash.—Cost of laying water mains in California ave. has been estimated at \$20,900.

Aylmer, Que., Can.—Town Council will be requested to extend water works to Echo Bay and The Cedars.

Lacnute, Que., Can.—Ratepayers have decided to purchase the water works system of Laurentian Water and Power Co. and also sanctioned loan of \$20,000 for improvement of the system.

Moncton, N. B., Can.—Council is considering the construction of reservoir; cost \$200,000 to \$250,000.

Victoria, B. C., Can.—Ratepayers will be asked to vote shortly on by-law providing for the development of Sooke Lake as source of water supply for Victoria.

CONTRACTS AWARDED

Temescal, Cal.—By Temescal Water Co., for the construction of a reinforced concrete pipe line, 8 miles in length, to connect Temescal with Carona, to Arthur S. Bent, Central Bldg., Los Angeles, for construction of 5½ miles of the pipe, to be 22-in. diameter; to the Reinforced Concrete Pipe Co., Central Bldg., Los Angeles, for constructing 2½ miles of 20-in. pipe; excavating 15,000 cu. yds. of earth in ditch and back-fill will be awarded soon; "Colton" Portland cement will be used; cost of entire work, \$60,000.

Centerville, Mich.—Furnishing mechanical and pumping equipment for water works and lighting plant of Centerville Water and Light Co., to Young-Gray Co., Toledo; electrical equipment, to F. Bessel Co., 226 Huron st., Toledo, O.—Vance & Gray, 226 Huron st., Toledo, O., Engineers.

Stratton, Neb.—To Intermountain Bridge and Construction Co., Tecumseh, for construction of water works system, \$11,000.—C. H. Sturtevant, Holdrege, Engineer.

Belaire, O.—Furnishing f.o.b. cars Belaire, c.-l. water pipe, sleeves, T's, crosses and elbows, to U. S. C. I. Pipe and Foundry Co., Cincinnati.

Brookville, Pa.—To Pitt Contracting Co., Fulton Bldg., Pittsburg, by Brookville Water Co., for construction of reinforced concrete settling basins and a dam; work includes following approximate quantities: 2,150 yds. earth excavation, 30 yds. rock excavation, 1,510 yds. embankment, 490 yds. rubble concrete, 526 yds. reinforced concrete, 208 yds. plain concrete, 340 sq. yds. slope paving, 230 ft. of 12-in. c.-l. pipe.

Timmonsburg, S. C.—Construction of water works from plans of J. N. Johnston, Florence; general construction, to Abe & Hart, Hickory, N. C., \$26,393; wells, to Hughes Specialty Well Drilling Co., Charleston, \$1,496; 100-h.p. bofier at \$760 and a steel tank and tower, to R. D. Cole & Co., Atlanta, Ga., \$4,850; valves and hydrants, to Columbia Iron Works, Chattanooga, Tenn., \$1,655, and general service pumps, to Platte Iron Works, Atlanta, Ga., \$1,185.

Denison, Tex.—Engine and pump, to Priggs-Weaver Machinery Co., Dallas, for Platt Iron Works pump, costing \$11,740; pump is made by the Platt Iron Works Co., Dayton, O.

BIDS RECEIVED

New York, N. Y.—Furnishing, delivering and installing certain apparatus and material at Ashokan, Kensico and Hill View reservoirs and in various structures along Catskill aqueduct in Ulster, Orange, Putnam and Westchester Counties to consist of 63 6-in. to 72-in. gate valves, 24 6-in. and 12-in. sluice gates, 10 6-in. check valves, 2 16-in. stop valves, 7 hydraulic cylinders for gate valves, 2 motor-driven operating mechanisms, 9 hand-operating mechanisms and miscellaneous appurtenances; approximate totals of bids received: Coffin Valve Co., Boston, Mass., \$69,444; Ogden Iron and Steel Mfg. Co., 174 Cedar st., New York City, \$69,975; Pittsburg Valve Foundry and Construction Co., 30 Church st., New York City, \$70,882.

New York, N. Y.—Furnishing, driving and connecting wells at the Whitestone pumping station: Grant Rohrer, 299 Broadway, lowest bidder, \$9,151; other bidders: E. H. & J. Connelly, \$11,292; Sweeney & Gray, Long Island City, \$12,126; Phoenix Construction Co., New York City, \$9,355.

LIGHTING AND POWER

Fort Smith, Ark.—Leigh Kelley has asked for 25-year franchise for piping and supplying gas in city.

Berkeley, Cal.—Center st. business men are considering installation of electroliers.

Bridgeport, Cal.—Board of City Supervisors has granted franchise to Hydro Electric Co.

Greenville, Cal.—The Indian Valley Electric Light and Power Co. is considering improvement of its system, including extensions to Taylorsville, Crescent and Seneca.—C. G. Zschokett, Secretary.

Long Beach, Cal.—Long Beach Consolidated Gas Co. will issue \$300,000 bonds for

improvements, including erection of gas holder, capacity 500,000 cu. ft., and laying of main line from plant at northwest corner of Long Beach Harbor to business section of city; pipe already ordered.

Loyalton, Cal.—City Trustees are reported to be considering construction of lighting system.

Piedmont, Cal.—Establishment of municipal electric light plant in Piedmont is being considered.—Hugh Craig, President Board of Trustees.

Point Richmond, Cal.—Richmond Light and Power Corp. will reconstruct system.

Denver, Col.—Larimer Street Improvement Association is considering installation of ornamental street lighting system on Larimer st.

Madison, Fla.—Town is considering question of municipal ownership of electric light system now belonging to Electric Power Co.

Cartersville, Ga.—City will install machinery in electric light plant to supply day current of electricity; cost about \$6,000.

Dublin, Ga.—Citizens have voted \$30,000 bonds for improving electric light and water plants and paving streets.

McDonough, Ga.—Establishment of municipal electric light plant is being considered.

Belvidere, Ill.—Petitions are being circulated for election on question of municipal lighting plant.

Brazil, Ind.—Council is considering plans for construction and equipment of municipal electric light and power plant.

Linton, Ind.—Town Board is considering repair and improvement of electric light plant.

Coggon, Ia.—Installation of municipal electric light plant is being considered.

Marshalltown, Ia.—City has rejected all bids for installation of water power auxiliary plant; cost \$12,000.

Abita Springs, La.—City is negotiating with Mandeville Electric Lighting Co. to extend electric lighting system to Abita Springs; distance nine miles.

Boston, Mass.—Light, Heat and Power Corporation is considering extension of high pressure mains in spring.—Geo. F. Howland, Secretary.

Muskegon, Mich.—F. F. Van Tyle, Engineer, Detroit, has been selected to prepare preliminary plans and specifications for lighting plant.

Saginaw, Mich.—Eastern Michigan Power Co. is preparing to dam Au Sable River to obtain power for lighting Saginaw and Bay City, and motive power for various industrial plants.

Long Prairie, Minn.—Council is considering installation of engine and dynamo at electric light plant. Address Mayor Maynard.

Northfield, Minn.—Council has decided to replace 16-c.p. lamps in residence section with 48-c.p. tungstens.

St. Joseph, Mo.—Mayor Clayton will recommend to Council \$250,000 bond issue for extension of electric street lighting system; proposes to add commercial lighting department.

Libby, Mont.—Villaro-Barnum Engineering Co., Great Falls, will prepare plans for electric light and power plant for Libby Water Works, Electric Light and Power Co.

Cortland, Neb.—Installation of electric light and water works system is being considered.

Giltner, Neb.—Citizens have voted bonds for electric lights.

Fallon, Nev.—Council is working on plan that may result in addition of an electric generating plant to water and sewerage systems; J. E. Hall, representing Fairbanks-Morse Co., has informed Council of the probable cost and time that will be taken to place proposed plant in operation.

Oneida, N. Y.—Citizens on Jan. 12 will discuss question of lighting city for next five years.

Bethold, N. D.—Council has granted franchise for electric lighting system to John I. Moore.

Minot, N. D.—Electric light experts from Kansas City will present to city detailed plans regarding cost of a municipal electric light plant upon which voters may vote next spring.

Lima, O.—Western Ohio Railroad Co., operating traction lines between Piqua and Findlay and Lima and Celina, has decided to enter commercial field for sale of heat, light and power to municipalities along its right of way; company has taken franchise for street lights and domestic lights in the villages of Rawson, Lockington and Beavervale, and has made a bid to light streets of Sidney at \$62.50 per arc light for all night service; franchise will also be asked in this city, Sidney, Anna, Botkins, Wapakoneta, Cridersville, Bluffton, Celina and small hamlets.

Sandusky, O.—Mayor Lehrer has refused to approve electric lighting franchise granted to Sandusky Gas and Electric Co. by the Council over his veto; present franchise, held by same company, expires Jan. 1.

Bethlehem, Pa.—Light Committee will present plan or plans for more efficient street lighting.

Nacogdoches, Tex.—Council has instructed Secretary McKinney to at once secure estimates on municipal electric light plant.—G. H. Matthews, Mayor.

Waco, Tex.—Citizens will vote on \$250,000 bonds to establish municipal electric light plant.

Logan, Utah.—Council has granted franchise for gas plant to R. L. Campbell.

Martinsville, Va.—Citizens have voted \$35,000 bonds for improvements to electric light plant and water works system.

Smyrnafield, Va.—Citizens will vote Feb. 21 on \$55,000 bonds for electric lights and sewerage.

Wayne, W. Va.—Belvard Oil and Gas Co. will lay five-mile pipe line and supply town with natural gas. B. J. Prichard, city, and Capt. W. P. Ferguson, Kenova, are interested.

Seattle, Wash.—Bids will be opened Jan. 6 for \$100,000 light and power bonds.

Victoria, B. C., Can.—By-law providing for loan of \$25,000 for more electric light equipment will be submitted to ratepayers at municipal election.

CONTRACTS AWARDED

Indianapolis, Ind.—To Indianapolis Light and Heat Co., by Board of Public Works, for incandescent electric street lights to be used as auxiliary to the present arc street lighting system; new lights will be placed on streets where there is much shade, where it is impossible to obtain gas lights, and where Board does not wish to install arc lights, which cost \$75 a year each.

Chinook, Mont.—Building electric light plant, to Laird Engineering Works and Ft. Wayne Electric Works.

Portsmouth, N. H.—Lighting city for five years, to Rockingham County Light and Power Co.; minimum expenditure will be \$11,000 a year.

Jersey City, N. J.—General contract for erection of gas tank at Howell st. and Charlotte ave. for Public Service Gas Co., to Bartlett & Hawley Co., Baltimore, Md.; cost about \$157,000.

Warren, O.—Street lighting, ten years, to Warren Water and Light Co., 114 East Market st., total 835 Mazda lamps, \$76 to burn all night and 150 to burn until midnight; there are to be 85 ornamental standards of one, three and five lights, said standards to be placed in business section and to be wired underground; furnishing standards, to Union Metal Mfg. Co., Canton; 6,000 ft. of cable, to Standard Underground Co., Pittsburgh; 2,350 ft. of steel armored cable has already been received from Simplex Electrical Co.; pole arms and reflectors, to Wheeler Reflector Co.; switchboard and transformers, to Westinghouse Electric Mfg. Co.—C. F. Inman, Superintendent of the Warren Water and Light Co.

Rock Hill, S. C.—Erecting power house at municipal electric light plant, to W. M. Keller, city, \$5,565.

FIRE EQUIPMENT

Helena, Ark.—Chief Neely Sullivan has recommended purchase of auto fire truck.

Alturas, Cal.—Citizens will vote in January on \$2,000 bonds for fire equipment.

Suisun, Cal.—Board of Town Trustees has decided to purchase 500 ft. of additional hose for fire department.

Denver, Col.—National Board of Fire Underwriters has recommended establishment of auxiliary squad equipped with motor-propelled apparatus; installation of motor-propelled chemical engine at station 4 and auto fire engines in three other stations; establishment of three hose companies equipped with auto combination hose wagon; also minor equipment.

Bristol, Conn.—Purchase of hook and ladder truck has been authorized.—Commissioners Blakeslee and Hall, Committee.

New Haven, Conn.—City will ask permission of General Assembly to issue \$65,000 bonds for proposed fire headquarters.

New Haven, Conn.—Fire Commissioners have referred to Committee on Houses and Apparatus, Commissioners Bracken and Judd, matter of purchasing without bids new combination automobile fire engine for Prospect st. house and automobile for Marshal Perkins; award is to be made within a week.

Wallingford, Conn.—Simpson Hook and Ladder Co. is urging purchase of truck.

Mishawaka, Ind.—Town Board will soon receive bids for furnishing all material and labor for installation of police and fire alarm systems.

Knoxville, Ia.—City is considering erection of fire station.—Kraetsch & Kraetsch, Des Moines, Architects.

Hingham, Mass.—City is considering purchase of auto chemical.

Kalamazoo, Mich.—Fire Commissioners are investigating various types of auto wagon.

St. Paul, Minn.—Fire Board will ask permission to erect fire station at St. Anthony Park.

St. Louis, Mo.—Architect F. A. Huser has prepared plans for erection of \$16,000 engine house.—W. B. Dryden, Secretary Board of Public Improvements.

Concord, N. H.—City will improve central fire station.

Concord, N. H.—Council is considering purchase of steamer and hose wagon.

Morristown, N. J.—Fire Chief Runyon will recommend purchase of auto truck for Resolute Hook and Ladder Co.

Perth Amboy, N. J.—Council has adopted \$15,000 bond issue for improving fire and police alarm system and police department facilities.

Wildwood, N. J.—Crest Fire Co. is securing funds for purchase of apparatus.

Reno, Nev.—Council is considering extension and improvement of fire alarm system.

Brooklyn, N. Y.—Sites on Oakley ave., Woodhaven, and Halsey st., have been secured for erection of engine houses. Address Fire Commissioner Waldo.

Poughkeepsie, N. Y.—Newly organized Fairview Fire Co. will be provided with combination wagon.

Akron, O.—Council has decided to issue \$3,000 bonds to purchase fire chief's combined auto wagon and chemical engine.—Dow W. Harter, Clerk.

Lakewood, O.—Council has asked for bids for fire apparatus.—B. M. Cook, City Clerk.

Weston, O.—Council has appropriated \$2,000 for purchase of fire apparatus.

Corpus Christi, Tex.—Commissioner of Fire and Police Sutherland has been instructed to advertise for proposals on combination hose and chemical automobile fire wagon to cost in the neighborhood of \$5,000.

Portsmouth, Va.—Fire Chief Wm. R. Walker has recommended need of follow-link equipment: Fuel wagon, \$150; store house, \$150; auxiliary taprer system, \$150; five hose dryers, \$125; one ladder pipe, \$200; and 3,000 ft. of hose, \$3,300.

Seattle, Wash.—Bids will be opened Jan. 6 for \$421,000 bonds for fire house sites and stables.

CONTRACTS AWARDED

Boston, Mass.—To American-La France Fire Engine Co. for supplying a motor combination chemical engine and hose wagon: Combination Ladder Co., \$3,748, \$4,495, \$4,650; Waite-Robbins Motor Co., Inc., \$4,200, \$4,400; D. P. Nichols Co., \$4,500; Webb Motor Fire Apparatus Co., \$4,650; Dodge Motor Vehicle Co., \$5,000; Arthur L. Waugh, \$5,200; American-La France Fire Engine Co., \$5,500; Knox Automobile Co., \$5,500, \$5,600; James Boyd & Bro., Inc., \$6,250; proposal of D. P. Nichols Co. was objected to as it had not been placed in the proposal box with the other bids.

Rochester, N. Y.—Furnishing two 50-gal. Champion chemical cylinders for new fire wagons to be built at fire department repair shop on Central ave. next year, to American-La France Fire Engine Co., Elmira, \$425 each.

BRIDGES

Ventura, Cal.—Chas. Petit, Oxnard, has been selected as supervising engineer for new bridges to be built throughout Ventura County during the winter; cost of work, \$225,000.

Wilmington, Del.—Ninth Ward residents are urging erection of bridge across Brandywine.

Hartwell, Ga.—Hart County has defeated issuance of \$40,000 bridge and road bonds.—W. B. McMullan, County Clerk.

Chicago, Ill.—Council is considering reconstruction and improvement of 25 bridges according to instructions of the Federal Government; plans for the following have already been obtained: Chicago ave. bridge, \$280,000; Indiana st., \$250,000; Washington st., \$360,000; 35th st., \$260,000; 92d st., \$325,000; following bridges will be constructed also after approval of proposed bond issue: Belmont ave. bridge, \$90,000; Lake st., \$400,000; Fuller st., \$175,000; Blackhawk st., \$250,000.

La Grange, Ind.—County Council has appropriated \$12,409 for construction of bridges over new Fly Ditch Creek.

Covington, Ky.—Committee of the Whole of Both Boards has accepted plans for new Willow st. viaduct; City Engineer and Railroad and Bridge Committee will prepare necessary ordinance for the construction of viaduct; cost estimated at \$20,000.

Portland, Me.—City is considering erection of bridge between this city and Knightville.

Albany, N. Y.—Supervisors have appropriated \$2,300 by resolution of Supervisor Shufelt for bridges at Preston Hollow.

Black River, N. Y.—Towns of Rutland and Le Ray are to build a concrete and steel bridge 18 ft. wide and 172 ft. span across Black River.—Morris Gregg, Superintendent.

Fulton, N. Y.—Council has passed resolution for bridge to be constructed across Oswego River, connecting East and West Broadway.

Durham, N. C.—Durham County Commissioners have decided to soon let contract for construction of concrete bridge across Eno River.

Drayton, N. D.—County Commissioners have decided to construct bridge over Red River; cost about \$50,000.

Brilliant, O.—Construction of bridge over Ohio River is being considered.

Napoleon, O.—Council has decided to urge Commissioners of Henry County to take immediate steps toward repairing present bridge over the Maumee River or replacing it with new structure.

Corvallis, Ore.—Plans and specifications for the construction of proposed bridge across the Willamette River have been submitted to War Department of the United States for approval; cost about \$55,000.

Kutztown, Pa.—Berks County Grand Jury has presented favorable report on project to build bridge over Sacoony Creek.

Anderson, S. C.—Anderson County Commissioners and Hart County, Ga., Commissioners, are considering construction of bridge across Savannah River to cost \$27,000.

Knoxville, Tenn.—Council is considering securing offers on concrete structure on Gay st. across Southern railway tracks.

Coleman, Tex.—Courts of Coleman and McCulloch Counties have decided to construct two bridges over Colorado River, one at Waldrop, cost \$15,896, and one at Stacy, cost \$21,484.

Danville, Va.—Committee on Roads and Bridges is considering construction of highway bridge over Dan River.—J. O. Magruder, City Engineer.

Pearisburg, Va.—Bids will be received Jan. 2 for \$30,000 bridge construction bonds.—F. E. Snidow, Clerk Board of Supervisors.

Marinette, Wis.—The Marinette and Menominee City Councils have agreed to rebuild upper bridge across Menominee River.

Milwaukee, Wis.—J. L. Klug, Superintendent of Bridges, is preparing plans for erection of bridge at Oneida st.

Edmonton, Alta., Can.—City is considering erection of bridge.—A. J. Latornell, City Engineer.

Beaumont, Ont., Can.—Roads and Bridges Committee of County Council has estimated that \$403,000 will be required to rebuild present wooden bridges in order to make them up-to-date structures.

Owen Sound, Ont., Can.—Ratepayers will vote on by-law to provide \$20,000 for permanent bridge at 10th st. and wooden bridge at 9th st.

CONTRACTS AWARDED

Petersburg, Ind.—Building four bridges in Pike County, to A. H. Kinnan.

Hutchinson, Kan.—To C. H. Everett, 122 W. 13th st., by the Board of Haven Township, Reno County, for construction of two concrete bridges, one 20 ft. span, two miles from river, plain concrete, \$7.75 per cu. yd., reinforced concrete, \$13.70 per cu. yd., and one span 12 ft. seven miles from river, \$9, plain concrete, and \$14 for reinforced concrete.

Dallas, Tex.—Construction of the Oak Cliff terminal of the Dallas-Oak Cliff viaduct, to H. H. Yorty, Fort Worth, \$15,970.

Entiat, Wash.—By County Commissioners, to Gerick & Gerick, Seattle, for building bridge over the Entiat River; structure will cost \$15,000.

MISCELLANEOUS

Greenville, Ala.—Plans are being prepared for erection of jail.—H. D. Lamplrey, Judge Probate Court.

Helena, Ark.—Plans are being prepared for erection of city hall.

Los Angeles, Cal.—Commissioner Frank V. Owen has made proposal that city engage in manufacture of police patrol boxes for its own use.

Oakland, Cal.—Proposition of \$12,000 swimming pool in Bushrod Park is being considered by Playground Commission, George Dickie, Secretary.

Hartford, Conn.—Citizens will vote in April on \$25,000 bonds for establishment of public comfort station.

New Haven, Conn.—City will ask General Assembly for permission to issue \$100,000 bonds for purchasing and improving playgrounds; \$50,000 bonds for improvement of central green, \$75,000 for sea walls, and \$200,000 for use of Park Board.

Wilmington, Del.—Phoenix Fire Co. has appointed committee to purchase automobile ambulance.—Emmett Morrow, Chairman.

Washington, D. C.—An American Consul-General in Europe has reported that municipality in his district in spring of 1911 will purchase machinery to equip large slaughterhouse and refrigerating plant that is being established by the city. Address No. 5530, Bureau of Manufactures.

Pensacola, Fla.—Bids will be received Jan. 16, noon, for \$250,000 improvement bonds.—J. A. Merritt, Chairman Board of Trustees.

Chicago, Ill.—John L. Whitman, Superintendent of the Bridewell, has recommended the installation of a garbage incinerator at Bridewell; cost \$12,000 to \$15,000.

Evensville, Ind.—Board of Public Works has rejected all bids on city street sweeping for 1911; lowest bidder, A. P. Eigenmann, 21c. per 10,000 sq. ft.; bids will be readvertised for.

Frankfort, Ind.—Contour lines of survey for improvement of city park are now ready for landscape engineers to inspect and submit bids for drives in park site, which consists of 83 acres of land.

Huntington, Ind.—Crematory will be erected by Ed Bair for disposal of garbage if contract for its disposal is given to him for long term of years.

New Orleans, La.—Sewerage and Water Board has adopted resolution authorizing expenditure not exceeding \$5,000 for repair of sheeting of wood-lined canals.—W. J. Hardee, City Engineer.

Boston, Mass.—Council has appropriated nearly \$119,000 of income of Parkman fund for establishment of zoo and aquarium.

Springfield, Mass.—Board of Supervisors will ask for bids for removal of ashes and garbage in Indian Orchard.

Bay City, Mich.—Police Committee will recommend purchase of auto patrol wagon.

Duluth, Minn.—Recommendation for three new parks and playgrounds have been made to Council by Park Board.

Kansas City, Mo.—Board of Park Commissioners is preparing to extend playground system next season; Geo. B. Kessler, landscape architect, will prepare plans for modern playground at Mulkey pl., including up-to-date apparatus, wading pools, etc.

Elizabeth, N. J.—Board of Playground Commissioners has recommended purchase of large playground.

Kearny, N. J.—Council has sold \$25,000 playground bonds to John D. Everett & Co.

Perth Amboy, N. J.—Council has adopted \$15,000 bond issue for improving police department facilities and police and fire alarm system.—Wilbur Larue, City Clerk.

Summit, N. J.—Council is considering purchase of lands south of Lackawanna station for park purposes.

Bronxville, N. Y.—Village Board is considering establishment of park.

New York, N. Y.—Street Cleaning Commissioner Edwards has revoked snow removal contract for central part of Manhattan and will readvertise for bids.

Olean, N. Y.—State Prison Commissioner F. E. Wade has recommended erection of new police headquarters.

Salamanca, N. Y.—State Prison Commissioner Frank E. Wade has recommended erection of new jail.

Saranac Lake, N. Y.—Supervisor Jas. A. Latour, of Town Board of Harrietstown, will secure price on device manufactured by Alexander, Muncie & Co. for keeping roads clear of drifts.

Charlotte, N. C.—City will erect stables at cost of \$2,500.

Minot, N. D.—Contract will be let about Jan. 1 for erection of \$15,000 library at Hamstad and 3d sts.; plans by Architect Woodruff.

Stanley, N. D.—Mountrail County is considering erection of proposed court house.

Cincinnati, O.—Mayor Schwab has approved ordinance appropriating \$4,500 for the purchase of automobile for the use of Fred Maag, Superintendent of Street Cleaning.

Oklahoma City, Okla.—Council is considering election on \$300,000 bonds to erect combination modern office building and city hall.

Albany, Ore.—Citizens have defeated \$15,000 bond issue for purchase of city park.

Lebanon, Ore.—Citizens have defeated proposed bond issue for erection of city hall.

Erie, Pa.—Mayor Liebel has suggested that Council use \$20,000 available in establishment of garbage collection system and disposal plant and completion of municipal asphalt repair plant.

Spartanburg, S. C.—Board of Health is considering establishment of abattoir.

Norfolk, Va.—For enlarging the Female Orphan Asylum, 203 Holt st., and helping to maintain it Finance Committee has recommended an appropriation of \$3,200.

Norfolk, Va.—Board of Control will prepare estimates on cost of public lavatories at city market and Commercial place.

Portsmouth, Va.—Mayor Reed is favorable to need of erection of larger almshouse.

Seattle, Wash.—Board of Public Works has rejected all bids for constructing addition to Pike pl. market.

Seattle, Wash.—Bids will be received Jan. 6 for \$1,000,000 park bonds.

CONTRACTS AWARDED

Oakland City, Ind.—Erection of city hall, to William Risley, \$2,500.

Boston, Mass.—To Richard T. Green Co. for repairing sludge dumping scow, \$1,997; only other bidder, Richard F. Keough, Jr., \$3,125.

Camden, N. J.—Building municipal hospital, to John A. Carter Co., Philadelphia, \$33,900; other bidders: George Bachman, city, \$34,300; James Draper, \$34,995; Graw & Runt, \$40,876; Turner & Stewart, \$40,500; John Tate, \$36,834; Barcalow & Fulton, \$38,980; Graw & Co., \$39,180; J. F. & A. L. Pennock, \$41,887; B. F. Ketcham Son, \$39,280; M. P. Murphy, \$38,870; Metzger & Wells, \$36,928; John Dougherty, \$41,836.

New York, N. Y.—Building iron railings around grass plots on Broadway, 110th to 122d sts., to Anchor Post Iron Works, 165 Broadway.

Richmond, Va.—Furnishing 6,000 bbls. of Old Dominion Portland cement, to C. P. Lathrop, city, \$1.51 per bbl., or if delivered in bags credit of 7½c. is to be allowed by firm for each bag returned.—Charles E. Bolling, City Engineer.

BIDS RECEIVED

Los Angeles, Cal.—Construction of the annex to city hall, John Nelson, lowest bidder, \$18,195, and the Alta Planing Mill Co., lowest bidder for general contract only, \$16,492.

Evanston, Ind.—Street Cleaning, August Eigemann, 21c.; Henry Korpff, Jr., 23c.; Gus Howe, 23½c.; all bids on 10,000 sq. ft.

Portland, Ore.—Excavating canal to be used in diverting Lost River to the Klamath, W. H. Mason, Klamath Falls, lowest bidder, \$63,307.

Brooklyn, N. Y.—Erecting a comfort and shelter building in Winthrop Park: Rufus H. Brown, 1357 Rogers ave., Brooklyn, \$28,922; Thos. J. Buckley Construction Co., 103 Park ave.; New York City, \$27,003; Carlo Boilgia, Stone Co., 1133 Broadway, New York City, \$25,543; Peter Cleary, 115 Marion st., Brooklyn, \$28,200; Concord Construction Co., 38 Park Row, New York City, \$27,943; George F. Driscoll, 550 Union st., Brooklyn, \$26,500; H. F. English Building and Contracting Co., 103 Park ave., New York City, \$29,153; Fox-Hennessy Co., 81 East 125th st., New York City, \$30,817; A. & W. Gray & Co., Inc., 237 W. 37th st., New York City, \$29,900; Kelly & Kelley, Inc., 45 East 42d st., New York City, \$30,997; John J. Kenny, 435 73d st., Brooklyn, \$32,983; Geo. J. & William Martin, 391 Fulton st., Brooklyn, \$28,613; McDermott & Hanigan, 31 West 42d st., New York City, \$27,674; Thos. McKeown, Inc., 103 Park ave., New York City, \$26,300; Merrick Fireproofing Co., 1 Broadway, New York City, \$28,575; Wm. J. Moran, Inc., 136 Broadway, Brooklyn, \$28,797; Dan. J. Ryan, 723 3d ave., Brooklyn, \$27,381; John R. Sheehan & Co., Inc., 1170 Broadway, New York City, \$31,300; H. C. Stowe Construction Co., 221 Greenpoint ave., New York City, \$29,150; J. I. Valentine, 150 Nassau st., New York City, \$29,430; Thos. J. Waters Co., 215 West 125th st., New York City, \$28,000; Wm. Werner, 657 Vanderbilt st., New York City, \$29,614.

New York, N. Y.—Furnishing all the labor and materials for preparing for, repairing and painting recreation buildings on piers at foot of (a) E. 112th st., Harlem River; (b) E. Third St., East River; (c) W. 129th st., North River, and (d) W. 50th st., North River; Aug. Wille, Jr., (a) \$7,298, (b) \$9,524, (c) \$6,911, (d) \$13,685; A. B. Londin, (a) \$7,769, (b) \$9,312, (c) \$8,955, (d) \$15,228; Chas. Schultz, (b) \$6,649; N. B. Smyth, (a) \$3,270, (b) \$7,000, (c) \$5,690; (d) \$10,989; William Werner, (a) \$7,989, (b) \$11,688, (c) \$8,349; William Horne Co., (a) \$5,400, (b) \$6,600, (c) \$5,200, (d) \$10,600; C. L. Dooley, (b) \$8,469, (d) \$12,314; J. M. Knopp, (a) \$5,877, (b) \$8,849, (c) \$5,653, (d) \$10,249; L. Dornbusch, (b) \$8,200; Louis Koenig, (c) \$7,743, (d) \$11,247; F. W. Saunders, (b) \$6,900.

New York, N. Y.—Furnishing all labor and material required for making repairs to Pier 5, East River; Butler Bros. Construction Co., 1170 Broadway, N. Y., \$13,588; William N. Jenks, \$20,200; Riverside Construction Co., \$18,318; Phoenix Construction Co., \$18,200.

Richmond, Va.—Furnishing specification, plans and drawings for building a reinforced concrete bulkhead wharf on James River: H. M. Allport & Son, Richmond, four designs, \$40,986, \$42,214, \$38,757 and \$79,065; Thomas Phee Construction Co., Chicago, \$67.50 per lin. ft.; Raymond Concrete Pile Co., New York, two designs, \$31,830 and \$24,500; Charles F. Wathers, Pittsburgh, Pa., \$17,163; I. J. Smith & Co., Richmond, \$74 per lin. ft.; Minor Engineering Co., two designs, \$33,320 and \$35,680, and Allsop & Pierce, Newport News, Va., \$25,000 for pile construction.

Spokane, Wash.—Furnishing police auto patrol local branch E. M. F. Co., lowest bidder, offering Studebaker car, 4-cylinders, 40-h.p., \$5,625; \$3,000 available.

TOO LATE FOR CLASSIFICATION

STREET IMPROVEMENTS

Wetumpka, Ala.—Bids will be received Jan. 23 for \$70,000 road bonds.—H. J. Lancaster, County Clerk.

Chico, Cal.—City has sold \$19,000 street improvement bonds.

Indianapolis, Ind.—Board of Works has approved resolutions for improving Daly St. with brick roadway and curbing and two streets with cement walks.

Lansing, Mich.—Lansing citizens' Club is considering construction of proposed road, mile south of city.

Avalon, N. J.—State Board of Public Utility Commissioners has granted permission to Borough to extend 25th and 39th Sts., across tracks of West Jersey and Seashore Railroad Co. at grade.

North Wildwood, N. J.—Citizens are favorably discussing extension of the boardwalk from 17th St. to Inlet at Anglesea.

Dolgeville, N. Y.—Contract is soon to be let for State Highway to extend from Piseco Lake across town of Morehouse in Hamilton County to Herkimer County line; length about 7 miles.

Newburgh, N. Y.—Contract will be let in January for construction of proposed Newburgh-Cornwall State road.

Defiance, O.—Plans are being drawn by City Engineer for the proposed 5th, Perry and 2d sts. extension pavement improvement.

Cincinnati, O.—Surveyor Cowen has estimated cost of improving Delhi road at \$7,046.

Twinsburg, O.—City has sold \$7,000 street improvement bonds.

Fairmount, W. Va.—Council is considering paving portion of Fourth St.

CONTRACT AWARDED

Syracuse, N. Y.—Paving Concord place to John Young, city, \$6,508.90.

BIDS RECEIVED

Crookston, Minn.—Asphalt paving on Ash st. and East 3d st.: P. McDonnell, Duluth, \$2.20 per yard, with concrete "A," and \$1.09 using concrete "B," according to specifications, including 3-in. deep drains and other changes in manholes, etc.; General Construction Company of Minneapolis, \$2.38 per yard, with concrete "A" and \$2.13 with concrete "B," as specified, including other work mentioned above.

New York, N. Y.—Regulating, grading,

setting curbs, flagging sidewalks, laying crosswalks, building approaches and placing fences and paving with granite block on sand foundation, of Canal st., 135th st. to 138th st.; lowest bidder, Di Menna Constr. Co.: 130 cu. yds. earth excav., \$1.25; 800 cu. yds. filling, 4c.; 1,695 lin. ft. new curb, \$1.20; 6,350 sq. ft. new flag, 20c.; 180 sq. ft. old bridgestone, rejoined and relaid, 10c.; 2,110 sq. yds. new granite block pvt. on sand foundation, with sand joints, and keep same in repair for 1 year from acceptance, \$1.83; total, \$7,270. Totals of other bids: L. J. Moran, \$7,828; Atlanta Contr. Co., 432 E. 91st st., \$7,862; M. Baird Contr. Co., \$8,059; Asphalt Constr. Co., 207 Broadway, \$7,504; J. Farrell, 2105 7th ave., \$7,921 and A. Clavanni, \$7,625. Jerome ave., Mosholu Parkway to the northerly line of the city, J. E. Malatesta, 3169 Jerome ave., lowest bidder: 34,500 cu. yds. filling, 70c.; 19,350 lin. ft. new curbs, 68c.; 76,700 sq. ft. new flag, 23c.; 5,519 sq. ft. new bridgestone for crosswalks, 45c.; 200 lin. ft. vitr. stoneware pipe, 12 in., \$1; 5,000 ft. lumber, \$25; 4,100 lin. ft. new guard rail, 15c.; 75 lin. ft. vitr. stoneware pipe, 15 in., \$1; 7 inlets, complete, \$50; total, \$58,793. Totals of other bids: Goodwin Constr. Co., \$75,232; L. J. Moran, \$71,988, and A. Clavanni, \$74,765.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREET IMPROVEMENTS				
Florida.....	Tampa.....	Jan. 3.....	Furn. road roller, scarifier and grader to County.....	Board of County Commissioners.
Indiana.....	Laporte.....	Jan. 5.....	Macadamizing 14,392 ft. road, Scipio twp.....	C. H. Miller, County Auditor.
Kentucky.....	Paducah.....	Jan. 16, 3 p.m.....	Bldg. sidewalks, etc., 3 jobs; concrete walks: 14,325, 23,000 and 13,300 sq. ft.; concrete driveways: 820, 800 and 380 sq. ft.; concrete gutters: 2,900, 3,940 and 2,520 lin. ft.; granite curb: 2,900, 3,940 and 2,500 lin. ft.; L. A. Washington, City Engineer.....	Board of Public Works.
SEWERAGE				
Ohio.....	Akron.....	Dec. 27.....	Bldg. sewers in por. of 4 sts. and exten. in Glenwood ave.....	J. W. Gauthier, Dir. Pub. Service.
Brit. Col'bria.....	Vancouver.....	Jan. 3.....	Installing a sewer system; pipes to be laid in 9 sts.....	City Clerk.
New York.....	Buffalo.....	Jan. 3, 11 a.m.....	Repairing found. of boilers, Hamburg Sewage Pump. plant.....	F. G. Ward, Comr. Pub. Wks.
WATER SUPPLY				
South Carolina. Yorkville.....	Dec. 30.....	Bldg. mechanical gravity filtration plant; capacity 250 to 500 gals. per minute; John G. Barnwell, Supt. Water Works.....	Board of Town Trustees.	
Minnesota.....	Two Rivers.....	Jan. 2, 8 p.m.....	Furn. f.o.b. cars one steam pump and access. for general service; cap. 3,000,000 gals.; F. E. Evans, Pres. Council.....	P. J. McAlpine, City Clerk.
BRIDGES				
Illinois.....	Peoria.....	Dec. 30, 8 p.m.....	Bldg. bridge over Ill. river at Bridge st., removing piers, piling, an old wooden bridge and debris of fallen conc. bidge. from site	Geo. F. Simmons, Comr. Pub. Wks.
Ohio.....	Girard.....	Jan. 9.....	Conc. work and bridge construction, new road to Mosier Lane..	Trumbull County Commissioners.
MISCELLANEOUS				
Maryland.....	Cumberland.....	Jan. 3, 3 p.m.....	Collecting and disposing of garbage, ashes, etc.....	Ward M. Eichelberger, Comr. P. P.
Maryland.....	Cumberland.....	Jan. 7, noon.....	Bldg. City Hall.....	Ward M. Eichelberger, Comr. P. P.
New York.....	N. Brighton, S.I. Jan. 10.....	Bldg. furnaces, steam boilers, etc., of Clifton destructor	Geo. Cromwell, Boro. President.	

SEWERAGE

Orland, Cal.—Town Board is considering election on bonds for municipal sewer system.

Sawtelle, Cal.—Preliminary plans for system of storm and sanitary sewers will be ordered by City Trustees.

Louisville, Ky.—Board of Public Works has decided to build lateral sewers in territory south of the L. & N. tracks, between 3d and 4th aves. to the city limits; First Assistant Engineer Roy Burks is at work upon plans.

Winchester, Ky.—State Sanitary Engineer Paul Hansen, Bowling Green, has recommended approving of plans by C. E. Collins, Consulting Engineer, Philadelphia, for proposed sewerage system.

Sparks, Nev.—Council has ordered that a bond issue of \$35,000 be floated for the purpose of building sewer system.

Buffalo, N. Y.—Council has decided to construct tile and brick sewers in four streets.

Whitewater, Wis.—W. S. Shields, Chicago, has estimated cost of proposed sewer system, including 8 miles of mains, septic tanks, filters, etc., at \$40,000.

CONTRACTS AWARDED

Atlanta, Ga.—Constructing the Peachtree Creek and Orme st. intercepting sewers, including about 7 miles of 48-in. concrete sewer, etc., and the contract for Section 4 for monolithic sewer to Dysard Constr. Co., Atlanta, \$35,547; to Nichols Constr. Co., Atlanta, Sec. 5, \$44,399; Sec. 6, \$43,327; Sec. 7, \$33,851; Sec. 8, \$33,447. Herding & Fuller, Consulting Engrs., 170 Bway, New York, N. Y. R. M. Clayton, City Engineer.

Sandusky, O.—Building sewers, water works and electric light plant to National Co., South Bend, Ind., \$26,000.

WATER SUPPLY

Orland, Cal.—Town Board is considering election on bonds for municipal water works.

Monrovia, Cal.—Contract will soon be let for water pipe for extension of water system.—C. N. Reed, City Clerk.

Sacramento, Cal.—City Engineer Randle has made following estimates of cost of installing pump in city water works: Pump itself, \$100,000; four new boilers, \$26,000; pipe connections, \$5,000; fuel pump heaters, \$4,000; foundation for pump, \$6,000; new mains, \$4,700; new building for pump, \$10,000 and protection for present intake when old Southern Pacific bridge is removed, \$3,000; total, \$158,000.

Denver, Col.—Denver Union Water Co. has completed plans for installation of pumping station in University Park; cap. 5,000,000 gals.—W. P. Robinson, Manager.

Inman, Kan.—Council is considering extension of water mains.

McPherson, Kan.—City has asked bids for \$10,000 water and light bonds.

Holyoke, Mass.—Plans are being prepared by City Engineer J. L. Tighe for construction of proposed storage reservoir.

Cleveland, O.—Installing pumping engines at Kirtland Pumping Station Co., Holly Engine Co., Buffalo, N. Y. \$112,769.

Coshocton, O.—Board of Public Service is considering installation of additional pump at water works; either steam or electrically driven.

Etowah, Tenn.—T. F. Peck, T. E. H. McCroskey, A. B. Bayless, John A. Bird, and T. A. Aber have asked for franchise for water works system, electric light and ice plant.

Richmond, Va.—Superintendent of Water Works E. E. Davis has recommended installation of water mains in South Richmond; plans will be prepared by same for pump for Lee District standpipe.

CONTRACTS AWARDED

Lawrence, Mass.—Furnishing quantity of pipe to Chas. Miller & Sons, Utica, N. Y., \$22.34 per ton; bell and spigot castings to same, \$49 per ton.

Sandusky, O.—Building water works, sewers and electric light plant to National Co., South Bend, Ind., \$26,000.

LIGHTING AND POWER

Los Angeles, Cal.—Los Angeles Gas & Electric Co. is considering plans for steel gas holder; cap. 6,000,000 cu. ft.

Middletown, Conn.—Middlesex Light & Power Co. has been formed to furnish light, heat and power in certain towns; proposed incorporators are Major T. M. Russell, Gutaf B. Carlson, William L. Whitney, all of this city; Niles E. Gladding, of Essex, and Ernest L. Prann, of Saybrook; company intends to do business in Essex, Saybrook, Chester, Haddam, East Haddam, Old Saybrook, Westbrook, Clinton, Madison, Old Lyme and Killingworth; has applied to General Assembly for a charter.

Norwich, Conn.—Gas and Electric Commissioners have asked for \$35,000 appropriation for renewing equipment of plant.

Horton, Kan.—City is considering installation of electric light plant.—B. B. Norris, City Clerk.

Inman, Kan.—Citizens are considering proposition to connect city with McPherson electric plant by wire to supply electricity for lighting purposes.

McPherson, Kan.—City has asked bids for \$10,000 light and water bonds.

Cape May, N. J.—County Board of Freeholders has granted Anglesea, Holly Beach & Wildwood Gas Co. a franchise to lay pipes on county roads.

Etowah, Tenn.—T. F. Peck and others have asked for franchise to install electric light, ice plant and water system.

CONTRACT AWARDED

Sandusky, O.—Building electric light plant, etc., to National Co., South Bend, Ind., \$26,000.

FIRE EQUIPMENT

Willows, Cal.—Citizens have voted \$10,000 bonds for purchase of modern fire apparatus.

Macon, Ga.—Architect Frank Happ will prepare plans for erection of fire station.—Ross Bowdre, Chairman Fire Committee.

Cairo, Ill.—E. R. Townsend, representing Fire Insurance Underwriters of Illinois, has recommended installation of modern electric fire alarm system, securing of combination hook and ladder truck with 40-gallon chemical tank; placing about 2,000 ft. of hose in each station and purchase of other equipment.

Rock Island, Ill.—New bids will be asked for furnishing 1,000 ft. of fire hose.—Alderman H. J. Frick, Chairman, Fire and Light Committee.

Sherborn, Mass.—Town will organize fire department and purchase apparatus and hose.

Newark, N. J.—Newly organized Caldwell Township Volunteer Fire Department expects to erect a fire house and purchase fire apparatus.

Kennmore, N. Y.—Construction work will start soon on home of Alert Hose Co.

New York, N. Y.—Fire Commissioner Waldo will at once ask for bids for building of ten portable blacksmith shops for use in fire department to be constructed and put in operation in the fire boroughs by first of year.

Syracuse, N. Y.—Plans and specifications for a new central fire alarm system are being prepared under direction of Commissioner of Public Safety H. E. Hessler; it is intended to receive bids early next year.

Schenectady, N. Y.—Plans are being considered by the S. W. Pitts Hose Co. of Latham to secure a home and equipment for the protection of property within its jurisdiction.—James Gaffers, President.

Boswell, Pa.—Contemplated improvements for Boswell Volunteer Fire Co. consists of new hook and ladder truck and all equipment connected with it; directors of the company, having been given power to act, are now seeking most reasonable purchase.

Alexandria, Va.—Council is considering installation of modern fire alarm system.

Fairmont, W. Va.—Fire Committee has decided to erect proposed fire house in spring.

BRIDGES

St. Paul, Minn.—City Engineer Rundlett has been authorized to prepare plans and specifications for bridge across tracks at Hamline ave.

Northampton, Pa.—Central Railroad of New Jersey has agreed with Borough authorities to build bridge costing \$36,000 to improve streets and obtain better route.

Castledale, Utah.—Emery County Commissioners are considering erection of bridge across Price River at Woodside.

Wheeling, W. Va.—Erection of concrete bridge to span Woods Run to L. G. Halllock & Sons, \$3,200, exclusive of concrete work.

MISCELLANEOUS

Willows, Cal.—Citizens have voted \$25,000 bonds for erection of city hall and \$5,000 bonds for purchase of site.

Greenwich, Conn.—Town has \$25,000 available for erection of tuberculosis hospital.

Flint, Mich.—Village of New Lathrop has been practically destroyed by fire; no protection.

Mt. Clemens, Mich.—Macomb County is considering election on \$40,000 bonds for erection of jail and sheriff's residence.

Minneapolis, Minn.—Plans prepared by E. H. Bennett, of Chicago, for civic center have been approved by Civic Commission.

Jamestown, N. D.—Library Board will erect \$30,000 public library.

Seattle, Wash.—Bids will be received Jan. 16 for \$400,000 bonds for garbage collection and destruction; plans will soon be prepared for three incinerators.

Milwaukee, Wis.—Board of Estimate has decided to set aside \$100,000 in budget to start new \$4,000,000 harbor project.

PROPOSALS

THREE SEWER SYSTEMS

OFFICE OF THE BOARD OF LOCAL IMPROVEMENTS

Waukegan, Ill., Dec. 12th, 1910.

Sealed proposals will be received by the Board of Local Improvements of the city of Waukegan, Lake County, Illinois, until 8 o'clock P. M., Thursday, Dec. 22d, A. D. 1910, at the Council Chambers in said city of Waukegan (No. 107 Washington Street), for the construction of the following improvements, to wit:

Doc. No. 398—A system of sewers, with the necessary manholes, catch basins and house connections, in a portion of Wainlow Ave., Belvidere St. and South Jackson St.

Doc. No. 398—A system of sewers, with the necessary manholes, catch basins and house connections, in a portion of Bluff St., Chapel St., Glen Rock Ave. and Water St.

Doc. No. 399—A system of sewers, with the necessary manholes, catch basins and house connections in a portion of South Park Ave. and Clarke Ave.—all in the city of Waukegan, Lake County, Illinois.

Proposals must be made out upon blanks furnished at said office and be accom-

panied by cash or by a certified check for 10 per cent. of the aggregate proposal, payable to the President of said Board.

FRED W. BUCK,
President of the Board of Local
Improvements.
ALVAH L. ROGERS,
Secretary.

(25)

PAVING

Circleville, O.

Sealed bids will be received until noon on Tuesday, Jan. 3, 1911, for paving with vitrified brick of Court st., Circleville, O. The approximate quantities are as follows:

41,883 square yards brick pavement, including 6-inch concrete foundation, 2-inch sand cushion, cement or asphalt filler.

16,540 lineal feet straight curb Berea,

940 lineal feet circular curb Berea.

1,670 lineal feet stone edging.

24,636 cubic yards excavation.

Grading at street and alley intersections.

528 lineal feet 24-inch sewer in place.

615 lineal feet 18-inch sewer in place.

10 catch basins.

4 manholes.

Write John W. Lowe, Director of Public Service, Circleville, O., for specifications, blank forms, etc.

Contract will be entered into in five days. Work to begin as soon as weather is suitable.

The right to reject any or all bids is reserved.

PLANS, ETC., FOR BRIDGE
Office of City Engineer,
Richmond, Va.

Sealed proposals will be received at this office until 4 p. m., Wednesday, Feb. 1, 1911, for plans, designs, detailed drawings, strain sheets, specifications and proposals for the erection and construction of a reinforced concrete bridge over James River, not to exceed in cost \$225,000, each design and proposal for construction of bridge to be accompanied by a certified check for \$5,000, payable to the City Treasurer as a guaranty of execution of contract. Bond of 50 per cent of the amount of contract, when executed, will be required. The Committee on Streets reserves the right to reject any and all designs and proposals. Information as to the location of site, profiles and present conditions, for submission of plans, will be furnished from this office upon application. Persons submitting designs and bids are advised to examine location and determine for themselves the existing conditions.

CHAS. E. ROLLING,
City Engineer.

FOR SALE

TRANSIT FOR SALE

IMMEDIATE DELIVERY
Gurley Engineer's Transit, 180° arc, 6"
Level Bubble. Stadia. Horizontal verniers $\frac{1}{2}$ " in diameter. Instrument is in
good condition, having just received a
thorough overhauling. Price new, \$198.00.
Complete, with box and tripod, \$135.00.

THE ENGINEERING AGENCY, Inc.,
Supply Dept.,
Monadnock Block (Est. 1893) CHICAGO
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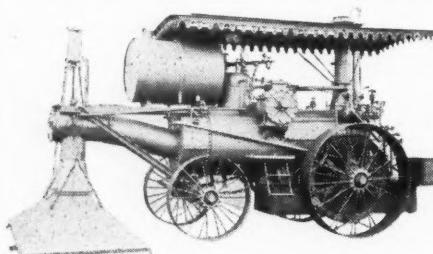
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MANUFACTURERS OF
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Culverts, Catch Basins, Rattlers, Etc.

Let us quote you prices

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REPAIR YOUR STREETS
With the Lutz Surface Heater

Lutz Surface Heater

Equitable Asphalt Maintenance Co.
KANSAS CITY, MO.

It vulcanizes the old and new material into a perfect weld. It makes repairing easy and inexpensive; our representative will be glad to call personally upon contractors or city officials who are interested in this work.

TO REMOVE SNOW

Quickly and Cheaply use
"The Little Yankee"

Blade set to throw either
to right or left.

Direct draft
feature a par-
ticular merit.

Used in win-
ter to remove
snow. All sea-
sons for road
work.

Write for particulars and prices

C. N. Carpenter Supply Co., Canton, Ohio

THE WORK OF
COLTRIN CONCRETE MIXERS

Jacksonville, Fla., April 26, 1910.

The Knickerbocker Co., Jackson, Mich.:

Gentlemen:—During the past year we have used your No. 9 Coltrin Mixer in the construction of Cement Roadways in this country, the last one you sent us putting in the neighborhood of four miles of roadway during the past few months. It is in as perfect condition now as when we started in and has proven satisfactory in every way. We enclose you a few photographs of the finished work. Yours very truly,

LOGAN COAL & SUPPLY CO.
Per C. M. Perkins, Mgr.

MANUFACTURED EXCLUSIVELY BY

THE KNICKERBOCKER CO.

JACKSON, MICH.

Write for catalog. See them at

NEW YORK CEMENT SHOW

MADISON SQUARE GARDEN, NEW YORK CITY, Dec. 14-20, 1910
Spaces 262, 263

CHICAGO CEMENT SHOW

COLISEUM, CHICAGO, Feb. 17-23, 1911. Spaces 39, 40